



PUBLISHED EVERY FRIDAY
AT

33, TOTHILL STREET, WESTMINSTER, LONDON, S.W.1

Telegraphic Address: "TRAZETTE PARL., LONDON"
Telephone No.: WHITEHALL 9233 (12 lines)

Annual subscription payable in advance and postage free
British Isles and Abroad£2 5s. 0d.
Single CopiesOne Shilling
Registered at the General Post Office, London, as a Newspaper

VOL. 85 No. 3

FRIDAY, JULY 19, 1946

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HISTORY OF THE BRITISH RAILWAYS DURING THE WAR 1939-45

by R. BELL, C.B.E.

with a foreword by Sir William Wood,
President. London Midland & Scottish Railway

THE RAILWAY GAZETTE
33, TOTHILL STREET, WESTMINSTER, S.W.1

Passage of the American Loan

AFTER seven months of controversy, the United States House of Representatives last weekend ratified by 219 votes to 155 the loan of £1,100,000,000 to Great Britain. After deduction of £162,500,000 for Lease-Lend settlement, £937,500,000 will be available to this country. Since the late Lord Keynes, who negotiated the loan, stated that the credit was the minimum necessary, dollar prices have risen by 20 to 25 per cent., but British exports also have exceeded expectations. So far as the loan makes possible less austerity in this country by the import of a greater variety of goods, and thus provides more incentive to British production, and the means of absorbing spending power, it should be welcomed for its anti-inflationary effect. The upward surge of prices in America must make for caution in the use of the credit. The least desirable of the exports that country now has to offer is the inflationary movement which seems to be well under way. With its greatly increased productive capacity, the United States is in a stronger position to deal with that menace than is this country, where similar tendencies are all too evident.

Nationalisation Tests

Whether the Government believes that an industrial system can be perfected by nationalisation, or whether it is determined on a political policy, is of greater academic than practical interest. Had it taken one industry and demonstrated by its success in managing it, that its plans rested on substantial foundations, there could be little cause for complaint. If the mining industry had been selected, simple tests could have been applied. Would it give the coal needed for domestic and industrial use with a margin of £37,000,000 worth of export? Could it attract sufficient miners to achieve this result? Would the cost of coal be reasonable without subsidies? Under private enterprise these results were obtained before the war. Private enterprise did not succeed in giving full employment in times of depression, nor in avoiding strikes, but present indications do not suggest that the Government will be more successful. In an article dealing particularly with nationalisation of the iron and steel industry, in a recent issue of the *Machine Tool Review*, published by Alfred Herbert Limited, surprise is expressed at the docility with which nationalisation proposals have been accepted by some industries. What would happen, it is asked, if it were proposed to nationalise the trade unions, or the Co-operative Wholesale Society?

The Government Objective

It is pointed out that the main object of the Government is to remain in power not only for the life of the present Parliament, but indefinitely. To do this it must appeal to the self-interest of those classes which have the greatest voting power, and if the administration plans are successful, and its policy of nationalisation is pursued, the State ultimately will stand possessed of all the assets of industry. The dispossessed owners will receive compensation in Government securities bearing such interest as the State may decide. Ultimately, therefore, the nation will be divided into two classes, managers and workers in industry and in innumerable Government offices, and, on the other hand, the dispossessed owners. In due course the latter class will be in danger of being considered parasites, and the interest on their bonds an unjustifiable tax on the workers. What is to prevent the interest from being reduced gradually to vanishing point and the ultimate cancellation of their securities by the State or their extinction by inflation, asks the *Machine Tool Review*. Should that occur, the unfortunate rentiers would have to choose between living on such pensions as the State might provide or take employment under Government in such occupations as might be available. The Socialised State would then be complete.

Organisation of the Irish Transport Company

The Irish Transport Company (Coras Iompair Eireann) has adopted a scheme of organisation which combines and adapts certain features of the departmental and divisional systems to its particular requirements as an operator of rail and road services. Departments are retained, but to ensure co-ordina-

tion of all the different types of transport services provided, the Traffic Department places under one executive—the Traffic Manager—all operating and commercial matters relating to rail, road freight, and road passenger services; the provision of motive power for rail services is also in the province of this department, the Running Superintendent being now responsible to the Traffic Manager instead of to the Chief Mechanical Engineer as formerly. Also responsible to the Traffic Manager are the Passenger Road Services Manager, the Road Freight Manager, the Operating Superintendent, and the Commercial Superintendent. The scope of the Traffic Manager's responsibilities, therefore, is similar to that of a divisional general manager in the divisional system of organisation. On the engineering side, road vehicle construction and maintenance is in charge of a Rolling Stock Engineer, Roads, who has his own department distinct from that of the Chief Mechanical Engineer, and the Electrical Engineer is similarly a principal officer.

Overseas Railway Affairs

The week ended June 29 was the 52nd in the financial year of the Argentine railways. Aggregate increases converted to sterling at ps. 16 to the £ on that date were as follow, the corresponding increase a year ago being shown in brackets: Buenos Ayres & Pacific, £257,281 (£1,156,781); Buenos Ayres Great Southern, £648,187 (£1,247,937); Buenos Ayres Western, £244,062 (£554,188); and Central Argentine, £861,334 (£954,664). Argentine North-Eastern receipts for the 52 weeks were £8,031 behind the total for 1944-45, which showed an increase of £155,462 over the figures for 1943-44. The Entre Rios aggregate showed an increase of £66,125, compared with £228,794 at the end of the preceding year. Results for the first week of the current financial year are shown in the table below. The weekly figures are for the seven days from June 30, and the aggregates for the six days from July 1:—

	No. of week	Weekly traffic	Inc. or dec.	Aggregate traffic	Inc. or dec.	
Buenos Ayres & Pacific*	...	2,319	+ 411	1,988	+ 80	
Buenos Ayres Great Southern*	...	4,004	+ 1,114	3,421,000	+ 531	
Buenos Ayres Western*	...	1,271	+ 214	1,083	+ 26	
Central Argentine*	...	3,126	+ 286	2,834	— 6	
		£		£		
Canadian Pacific	...	26	1,316,750	—244,000	36,179,750	—4,053,000

* Traffic returns in thousands of pesos

* Traffic returns in thousands of pesos

Canadian Pacific receipts for the six months to June 30 showed a decrease of £3,819,000 compared with 1945.

Southern Railway Cheap Fares Policy

Difficulties in connection with printing tickets place a limit to the extent of the cheap fare facilities that can be offered on August 1 in accordance with the announcement by the Minister of Transport, reported last week, that these facilities are to be restored. Southern Railway policy in this respect was explained by Mr. A. E. Hammett, Commercial Superintendent, at a press conference on July 10. The outer limit of the area from which cheap tickets will be issued to London on three days a week is defined broadly by a line through Windsor, Ascot, Guildford, Tonbridge, and Gravesend. Cheap tickets will not be issued from stations within ten miles of the termini, as these are served adequately by road and Underground services on which fares have not yet been raised. In the provinces there will be cheap tickets from local stations to nine towns with a population of 50,000 and over, and to eighteen market towns. No restrictions on the times of travel will be imposed outside the London area. A typical fare will be a 1s. return from Malling to Maidstone, comparing with the monthly return of 1s. 5d. These facilities are only a first step to wider concessions, and in the winter service the company hopes to restore day excursions by special trains.

Channel Islands and Brittany Services

An increase in the number of vessels available has enabled the Southern Railway and the G.W.R. to plan their sailings to the Channel Islands beyond the 28-day period on which they have been working so far, and from July 29 they will issue sailing tickets for any date up to and including October 6. Sailings in mid-week will be strengthened by the

use of larger vessels. Applications for sailing tickets after July 29 may now be made by post. The Southern Railway steamer, ss. *Brittany*, has now been released from war service, and is maintaining sailings between Jersey and St. Malo, which began on June 16. Passengers for St. Malo may proceed to Jersey to connect with the St. Malo steamer either by the Southern Railway service from Southampton or by the G.W.R. steamers from Weymouth. In the reverse direction the *Brittany* continues to Southampton after calling at Jersey. The schedule announced so far shows three sailings in July, four in August, and two in September.

Electric Railway Scheme for Dartmoor

A plea for the preservation of the Hay Tor Granite Railway, an unique structure on Dartmoor, built in 1820, was made at the resumed annual meeting of the Devonshire Association at Newton Abbot on June 19. A proposal early in the present century to electrify this ancient line, constructed originally to transport quarried granite, was described in detail by Mr. E. Amery Adams. The project, he said, was to convey "the rapidly-growing tourist traffic" from Bovey Tracey to Hay Tor, and was seriously considered about 1905. It was then proposed to generate the electricity required by using Bovey lignite coal to make producer gas for driving electric dynamos. The plan was not generally known, but the scheme went so far that a small power station was erected near the Bovey potteries, and electricity made as intended was used for some industrial purposes. The ruins of this station were still there. The route mileage of the ancient railway (excluding branches) was 8½ miles from Emsworthy Newtake to Ventimore.

London Transport Plans for Staff Education

An important announcement of plans for extending knowledge among the staff of the urban passenger transport industry as a whole was made by Lord Ashfield, Chairman of the London Passenger Transport Board, at the Board's second victory reunion dinner on July 10 (see page 79). It is already an established policy for officers of the Board to have opportunities of studying transport undertakings in other countries, and the Board itself frequently gives reciprocal facilities to visitors from abroad. It is now proposed that members of the wages staff in all ranks shall be able to visit other undertakings, not only in this country and within the Empire, but also in the United States and elsewhere. Concurrently with these plans, the Board is arranging for the issue of new staff publications. Such measures should contribute first to general knowledge, and then to that tolerant understanding of the problems of management and staff equipped with which a man may hope to fulfill Lord Ashfield's own ambition that an employee beginning on the lowest rung of the ladder may rise by his own exertions to the Chairmanship of the Board.

75-Wagon Freight Trains at 65 m.p.h.

A remarkable development in freight train operation was inaugurated by the New York Central System in May last. It is a new train, on overnight service between New York and Buffalo, booked to cover the 429 miles in 10 hr. 50 min. inclusive of stops at Albany, Utica, Syracuse, and Rochester, to detach and attach wagons. These trains may be made up to a total of 75 bogie wagons (300 axles), and are authorised to travel at speeds up to 65 m.p.h. over this relatively level route. The locomotives assigned to the service are the capable modern "L4" class, introduced in 1941, with 5-ft. 9-in. driving wheels and the 4-8-2 or "Mohawk" wheel arrangement; their 12-wheel tenders accommodate 43 tons of coal. For the start of this new service, 425 bogie wagons were specially built in 1945, and the pool of special wagons is to be increased to 1,000 as more trains of the same type are introduced. With the double object of advertising the service and providing ready recognition of the wagons in marshalling yards, the upper half and the doors of each wagon are painted vermilion, and the lower halves dark grey. The service is known as the "Pacemaker," sharing this title with the fastest "all-coach" streamline passenger train on the New York—Chicago service.

Nari Bridge Spans Old and New

In our issue of May 10 last, a few facts concerning the re-girding of the Nari Bridge on the N.W.R., India, were given in an editorial note. Since then, more information has come to hand, and is published elsewhere in this issue. The old Nari bridge wrought-iron Warren pony truss spans were supplied by P. & W. MacLellan & Co. Ltd., Glasgow, in 1886. Some 30 years later they were strengthened by the addition of steel sections to the chords, a second system of web members, and the doubling of the number of cross-girders. Twelve years ago, it was decided to re-girder this bridge with through-type plate-girder spans, each 9 ft. deep and weighing 100 tons. These spans were actually obtained from Germany, but were not used before the war, and were transferred to the Bengal-Assam Railway during hostilities. Subsequently, it was impossible to procure sufficiently wide plates in India to fabricate similar plate-girder webs without a horizontal splice, and so the present Warren trusses with verticals were substituted. As both types were designed to carry 22½-ton axle loads, it is interesting to note that the open web girders are 14 per cent. lighter than the plate girders. A feature of the trusses is that the flanges of the bottom chord channels are turned inwards, allowing of a particularly clean connection where the cross-girders are riveted on at the panel points; the lateral bracings, connected to the main girders at those points, have been kept 3 in. clear of the undersides of the stringers to avoid deflection of the bracings when the load comes on the stringers.

Rope Failure on Aerial Cableway

So strict are the regulations governing the construction and working of funiculars and cableways that accidents on them have been extremely rare. A recent issue of the Swiss journal, *Economie et Technique des Transports*, contains an account of an unusual one on the suspended cableway between Oropa and Lago Mucrone in Italy. On January 1, 1946, while the service was shut down so as to renew one of the carrying cables, a car, in which were the superintendent and four workmen, was precipitated some 180 ft. to the ground by the breakage of a cable. The car remained partially held by the tractor and safety cables, but four of the persons were injured. Examination of the cable showed that externally there was none of the usual indications of approaching risk, but that internally there was a short piece where several strands had become destroyed by oxidation. It appeared that when the line was being built the cable had been allowed to remain for a time partly immersed in the Oropa River, and the fault was considered to have originated from that cause.

A Logical Basis for Locomotive Ratings

A plea that locomotive ratings may be made on a truly comparable basis, is made in a recent issue of our American contemporary, the *Railway Age*, by Mr. F. E. Wynne, Consulting Transportation Engineer to the Westinghouse Electric Corporation. At present, steam locomotive ratings are usually given in maximum cylinder horsepower, despite the effect of machine friction between cylinders and wheels; diesel locomotives have the rating of the diesel engine quoted, regardless of transmission losses; and electric locomotives are rated at the horsepower which can be delivered continuously at the rails. Mr. Wynne has analysed painstakingly the results of performance tests on six different classes of prime movers for railways—two steam, one diesel-electric, and three electric. His first group of curves gives maximum performance, regardless of time limits; the second group shows the continuous capacity for the same six locomotives; five of these six develop the same value of continuous horsepower at about 70 per cent. maximum speed. He therefore re-plots the curves, modified so that the rated continuous capacity is taken as the value shown at 70 per cent. of maximum speed, and states his view that at this figure locomotives of equal rating and designed for the same operating speed will give substantially the same performance when handling the same weight of train (including the locomotive and—if used—the tender). The maximum output at the rails, maximum operating speed, starting tractive effort, and continuous tractive effort should be given.

Co-Ordination of Road and Rail Freight Transport

ON Tuesday last the Minister of Transport was presented with a memorandum prepared jointly by the General Managers of the four main-line railway companies and representatives of the Road Haulage Association on the co-ordination of road and rail freight transport. This memorandum has its origin in the campaign conducted by the railway companies in 1939 for the removal of some of the statutory restrictions which prevented them competing on fair terms with other forms of transport. A Road-Rail Conference was then formed, and although its work inevitably was retarded by the war, steady progress was made on such matters as classification, conditions of carriage, and the correlation of rates schedules.

The principal difficulty encountered was the absence of any single body able to speak with authority on behalf of the road hauliers generally. When the British Road Haulage Federation was formed last year, more rapid progress became possible, and in May, 1945, discussions were initiated between the General Managers and the representatives of the Road Haulage Association, which was formed as the result of the amalgamation of the six principal road associations. As the result, agreement has been reached on certain principles and proposals which the parties concerned feel are the best approach to the solution of the road-rail relationship, a problem which, incidentally, will have to be solved irrespective of whether the railways remain under their present ownership or are nationalised.

The proposals are important and far-reaching. Their basic principle is that the public should have an unfettered right to select the form of transport (including the right of traders to carry their own goods in their own vehicles under "C" licences) most convenient and economic for their own requirements. To make this possible, road and rail services should be so organised to ensure that, as far as is practicable, traders are provided with adequate alternative facilities with competition on fair terms. This, in turn, makes it necessary for road hauliers to accept similar responsibilities to the railways for providing reasonable services and for accepting traffic which they hold themselves out to carry without discrimination between traders; also for conforming to standard conditions of carriage, classification of merchandise, and national rates structures, which will be correlated in such a way between the different forms of transport as to encourage traders to make the best use of available transport.

These principles, we imagine, will meet with general approval, but their application obviously will be a lengthy process, and in any case will necessitate legislative action. It is proposed that the present carriers' licensing system should be amended so as to make it a statutory obligation for a carrier to carry goods or arrange their carriage in the districts and between the places mentioned in his licence. To achieve this, it is suggested that area organisations be formed under the auspices of the road haulage industry to provide for the carriage of such goods by road as cannot be handled expeditiously by individual hauliers. All holders of "A" and "B" licences, and the railway companies, would then be required to register with their appropriate area organisation and accept an obligation to carry any traffic necessary to enable the road haulage industry to fulfil its obligations. These area bodies would be managed and operated by the road hauliers. It is proposed that observance of rates and conditions of carriage for road as well as rail should be statutory.

Dealing with the carriers' obligation to accept traffic, the memorandum suggests that in future applicants for licences must not merely state their intention to carry certain goods between certain districts or places, but must accept an obligation to do so. It is also recognised that the road haulage industry cannot properly discharge the functions of a public service unless rates and conditions of carriage are established on an economic basis. It is, therefore, proposed that road hauliers should accept the same obligation as the railways of non-discrimination in charges as between users of transport. This will necessitate the road haulage industry formulating and adopting a national rates structure based on road factors, and the adoption by the railway companies of a rates structure for merchandise by both goods and passenger services capable of correlation with the road rates structure. This does not mean the adoption of equal rates for rail and road, although they

may be identical in some cases, and the preparation of these rates structures necessarily will take a considerable time.

To afford adequate protection to traders and the general public, it is proposed that a Road-Rail Tribunal should be established on the lines of the present Railway Rates Tribunal, to settle such matters as standard conditions of carriage, classification of merchandise, and correlated road and rail rates schedules. It is suggested that any representative body of users or providers of transport should be entitled to be heard when such matters are being considered, and that any user or provider of transport should be entitled to apply for the variation of a scheduled charge on the ground that it is not reasonable. The dangers of monopoly would be avoided by traders having freedom to select the form of transport which best suits them or to carry their goods in their own vehicles under "C" licences.

Other measures are propounded to promote co-ordination between road and rail, including the mutual arrangement of agreed or contract charges for road and rail traffic; and the rationalisation of railway collection and delivery services with those of other road services on a co-operative basis, possibly by the formation of new road area organisations. Voluntary arrangements may be made for the provision of railway wagons for the sole use of the road haulage industry on selected routes to provide express services for long-distance traffic.

Although the proposals envisage road hauliers accepting statutory requirements, they provide for the relief of the railways from the statutory restrictions mentioned in the road-rail agreement embodied in the 1939 report of the Transport Advisory Council on the "square deal" proposals. It is also suggested that a central transport advisory body should be formed to report to the Ministry of Transport on matters concerning the development and co-ordination of transport.

The authors of these sweeping and comprehensive proposals are to be congratulated on the very real measure of agreement which they have achieved. They claim with justice that their scheme will effect a large measure of co-ordination with a minimum disturbance of pre-war practice, and that it will leave ample scope for free enterprise on a fair competitive basis and yet make full provision for emulative co-operation. They rightly point out that any major disturbance of inland transport arrangements would be fraught with grave consequences to the trade and industry of the country. None of their present suggestions is irrevocable, and each step towards co-ordination must be carefully planned, as the problem is most complex.

The memorandum points out that the solution of the road-rail problem is only one step towards the co-ordination of all forms of inland transport services. It is a striking tribute to the statesmanship of the authors, therefore, to find that the inland waterway industry and the coastwise shipping industry warmly support the proposals and desire to enter into complementary agreements. Even more important is the news that the proposals are welcomed by such representative bodies as the Federation of British Industries, the Association of British Chambers of Commerce, and the Traders' Co-ordinating Committee. Great interest, therefore, will be attached to the reactions of the Minister of Transport. Meanwhile, both road and rail interests will continue jointly to examine every means of increasing the efficiency of their services.

Future of Argentine Railways

ON July 1 a British Government Mission to Argentina arrived in Buenos Aires, headed by Sir Wilfrid Eady. The object of the discussions is the conclusion of agreements on current economic or financial questions, among them the future of the British-owned Argentine railways. Sir Montague Eddy and Mr. B. H. Binder are associated with the mission on behalf of the British Argentine Railway Council.

The fact that the Mission is composed of members of the staff of the Treasury and Bank of England, the Board of Trade, and the Ministry of Supply, emphasises that the talks will be financial and economic rather than political, but the known policy of both governments to favour State-ownership of public utility undertakings suggests that the future of the British-owned Argentine railways may be explored from the viewpoint of a sale to the Argentine Government, whose State railway system already comprises roughly one-third of the total mileage of the country.

There will also be a desire to deal with the balance of

£140,000,000 standing to the credit of Argentine interests in London. The transfer of railways to Argentine ownership offers a financially practicable and, in many respects, convenient mode of settling Great Britain's indebtedness, though such a transaction is not simple. But the nationalisation of the railways may prove of less immediate moment than the supply of consumable commodities for which the present demand is very great, and it may well be that the Argentine government will be more interested in using the credit balance of £140,000,000 to obtain coal, aircraft for internal airways, and equipment for the development of oil-bearing lands, and to meet calls for rails and rolling stock for the State Railways.

The finance of those pressing demands, simultaneously with the nationalisation of the railways still in British ownership, would entail vastly greater expenditure than £140,000,000 at prices now ruling. The sterling balance is not wholly the property of the government, and precisely what means are available to secure transfer of sterling balances belonging to Argentine nationals for the purpose of carrying out State enterprise is not likely to enter into the discussions between the representatives of the two governments, but the facility or otherwise with which sterling credits could be so transferred might influence the attitude of the Argentine representatives.

Recent activity on the London Stock Exchange indicates a belief in this country that the settlement of the railway problem will occupy a high priority. According to the last published accounts, the issued capital, in shares and debentures, of the nine companies still in British ownership, is:—

Debentures and other debt ...	103,188,441
Preference shares ...	51,100,857
Ordinary and deferred stocks ...	95,023,050
	249,312,348

The Mitre Law provides that the Argentine Government may expropriate the railways at any time on payment of the recognised capital, plus 20 per cent. Any other basis of sale would be subject to negotiation and subsequent ratification by the stockholders. The undisputed figure of recognised capital is about \$2,642,000,000, and if the government exercised its option of taking over the lines at that figure, plus 20 per cent., there would remain the troublesome question of the rate of exchange for the purpose of paying out the British stockholders. At the current rate of \$16.50 to the £, the yield would be about £192,000,000.

On the other hand, if a deal were negotiated at a lower price, the London boards would be confronted with the complicated problem of devising a scheme for the distribution of the sterling proceeds which would be acceptable primarily to debenture holders and also to the various classes of stockholders. The debentures are not redeemable for many years, except in the event of the expropriation of the lines by the government. Earlier repayment could be carried out only by negotiation. If the sum remaining, after paying off the debentures, proved too meagre, difficulty might arise in inducing the preference and ordinary stockholders to agree to the sale of their property. Debenture and stockholders alike, doubtless, would bear in mind that refusal to accept the offer might lead to even worse conditions than have obtained for many years. Road competition has returned and will increase in intensity, working expenses have risen as a result of the war and are not likely to recede to their former level, and there is now the impending development of air services. Competition from road and air can be met only by the co-ordination of all forms of inland transport, in which the full concurrence of the government is imperative.

Indian Railways, Present and Future

ELSEWHERE in this issue a monumental volume by Professor Natesan, entitled "State Management & Control of Railways in India," is reviewed. He undertook its compilation—a matter of all but 500 pages—with the object of assessing broadly the results of State management of Indian railways from the time when railway finances were separated from those of the Central Government, in 1924, to 1937, when the Burma Railways were removed from Indian control. The separation of railway accounts, or the Separation Convention, as he terms it, is dealt with at great length, with the idea of publishing a critical review of the working of

this convention in its endeavour to reconcile state management with commercial principles of operation.

The existing system of financial control by the Railway Board is shown to be ineffective in certain respects, and, though state management is admitted to have its good points, "the record has not been equally impressive" where the economic aspects of railway working have been concerned. "The financial results of the State-owned railways since 1924 are deemed satisfactory on the whole," but "overcapitalisation during the depression period left a heritage of deficits and financial difficulties." On the other hand, the guarantee enjoyed by company-worked lines against loss "not infrequently resulted in undermining the economic incentive."

The professor argues that the fundamental defect in present railway finances is the fact that responsibility for the payment of interest charges and a contribution to the Government central revenues lies with the Railway Board and not with individual State railway administrations. Under the existing system, the poorer railways may consistently show deficits, which have to be made good from the surpluses of their richer neighbours, and so long as there is a surplus in aggregate from all railways, the Government is satisfied. It has adopted this attitude largely to meet the case of (a) developmental lines essential for opening up new country or developing new industries, or of (b) strategic lines necessary for defence. At any rate in the first instance, the construction of such lines is not commercially justifiable and they are bound to show losses. By benefiting the country as a whole, however, such a policy is considered justifiable, not only in India, but in other countries also.

As an alternative, the author advocates a redistribution of existing railways in such a way that poor and rich will be grouped together, as much larger systems, each able to stand on its own feet and be responsible for profitable operation on a commercial basis. Such grouping seems feasible in many instances and in ordinary circumstances, but it is not clear how exceptional cases can be covered. The interests of the Indian sovereign states, for instance, and differences of gauge have to be considered. Moreover, with the future political outlook in India so uncertain, consideration may have to be given to different civil administrations in groups of provinces based on communal majorities (if not to actual Pakistan) even if transport is controlled centrally or at a federal level. The problem is, therefore, not merely a commercial one, such as the author quotes as having been successfully solved in the United Kingdom and America. India has advanced rapidly and far on the road of modernisation, but there are still many important conditions making it desirable to consider it as more akin to a "united nations of Europe" than as a homogeneous country, whatever some Indians may say to the contrary. Amalgamation and grouping of railways must be governed by these conditions, some of which have just been mentioned.

After pleading strongly for a National Transport Authority for the control of all forms of transport in India, the author goes on to reiterate his advocacy of railway grouping on the grounds that, with the exception of the 7,000-route-mile North Western system, railways in India are small compared with the largest systems in other countries. This hardly seems a fair comparison, and in any case the administrative control of a comparatively compact system, like the L.M.S.R., is a very different problem from that of the Indian N.W.R.—of similar route-mileage—where it may take 36 hr. to travel by the fastest trains from one main line terminal to another. Moreover, some of the lines on the Indian list in this book have already been amalgamated, and others should not be included, namely, Burma and Jodhpur, the latter being owned and worked by an Indian State. In point of fact, the average size of the eight major Indian lines, omitting the N.W.R., is nearly 3,400 route-miles, and there are many railways in other countries of not much greater magnitude that are financially sound and efficiently operated. The advantages claimed for such vast systems as the German Reichsbahn, the Canadian lines, and others, are, at least, debatable, and on the other hand, and nearer home, the lines approximating to the Indian average mileage* are certainly far from inefficient.

* The route-mileages of the Great Western and Southern Railways are 3,781 and 2,156 respectively

Victorian Railways

THE report of the Victorian Railways Commissioners for the year ended June 30, 1945, shows gross revenue from railways, electric tramways, and public road motor services of £15,352,493, or £622,141 less than in the previous year. The decrease, which occurred almost wholly in goods business, was largely the result of active operations in the Pacific war zone moving progressively away from Australia. Other factors were the almost complete failure of the wheat harvest, restrictions on goods traffic because of the coal shortage, and also the priority removal of livestock from drought areas at reduced charges.

A surplus of £207,013 on operations for the year was £241,123 below that of 1943-44. Passenger business reached a slightly higher level than in the preceding year, assisted by the easing of restrictions and the restoration of certain services. Working expenses, at £12,914,088, were £381,807 lower. The principal decreases (shown in brackets) occurred in contributions to the railway renewals and replacement fund (£350,000), way and works maintenance (£187,776), railway accident and fire insurance fund (£36,827), war damage insurance (£33,918), and provision for arrears of leave and deferred maintenance (£37,771). The lower volume of goods business accounted for a decrease in expenditure of approximately £39,000. Increased expenditure was incurred for rolling stock maintenance (£143,042), wages awards (£114,000), increased supplies of tarpaulins (£108,000), and increased business in miscellaneous operations (£14,745). Working expenses again contained provision for the higher cost of overland coal from the State mines, which amounted to £324,000 after deduction of a small government subsidy of 5s. a ton.

Coal supplies were a source of anxiety throughout the year. For some months it was necessary to use firewood in locomotives to eke out coal reserves, and although it was possible to restore a limited number of passenger services in April, 1945, it was later necessary to resort again to wood fuel for goods trains and shunting engines in order to keep the extra services in operation. The April restorations brought the weekly scheduled mileage of passenger trains up to 43,000, compared with 29,000 during the period of heaviest restriction. Services were still, however, only about two-thirds of normal. The financial results of 1944-45 and 1943-44 are compared in the table below:—

	1943-44	1944-45
Gross revenue :—	£	£
Railways	15,881,888	15,258,317
Electric tramways	86,799	88,138
Public road motor services	5,948	6,038
Total	15,974,635	15,352,493
Working expenses :—		
Railways	13,232,025	12,835,545
Less charged to special funds :—		
Trust fund railway works (defence purposes)	722	1,127
Surplus revenue Act	17,887	2,113
	13,213,416	12,832,305
Electric tramways	62,703	64,093
Road motor public services	19,776	17,690
Working expenses charged to railway revenue	13,295,895	12,914,088
Net revenue	2,678,740	2,438,405
Interest charges and expenses (including loan conversion expenses)	1,901,656	1,902,592
Exchange on interest payments and redemption	201,321	200,026
Contribution to national debt sinking fund...	127,625	128,773
	2,230,602	2,231,391
Surplus	448,136	207,013

During the year the administration was able to suspend the regulation, in force since September, 1943, under which passengers from Melbourne were required to have their tickets endorsed with a particular train and date of travel. Seat reservations were also restored on a limited scale. These facilities had been confined during the period of heaviest restrictions to interstate expresses and two coaches on the Mildura line trains.

Electric suburban services were maintained at almost the normal level throughout the year. From January, 1945, however, the State Electricity Commission found itself unable to supplement the power generated at the administration's Newport power station, and this entailed an increase of about 500 tons a week in consumption of small coal at a time when fuel stocks were causing particular anxiety. Two new boilers and a turbo-alternator of similar capacity to the new generating equipment installed at Newport in 1943 will shortly complete the modernisation of this plant.

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

Slip Coaches in Scotland

60A, Green Lane,
Northwood, Middlesex. July 8

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—In addition to the two slips mentioned by Mr. Charleswood in your issue of July 5, as operating in the winter service of 1875, there was, in June of that year, also a slip at Stow off the 4.15 p.m. from Edinburgh to Carlisle, thus making the three referred to in your article of January 10, 1936. You were also correct in referring to two slips on the North British in 1890; they were operated in March of that year—namely, at Longtown, off the 1.31 p.m. (as then timed) from Carlisle to Edinburgh, and at Drem Junction off the 10.20 a.m. from Edinburgh to Berwick. The carriage slipped at Drem was stated in *Bradshaw* of March, 1890, to be "for Dirleton and North Berwick."

Yours faithfully,
REGINALD B. FELLOWS

Post-War Carriage of Coal

Charles Roberts & Co. Ltd.,
Railway Wagon Works,
Horbury Junction, near Wakefield. July 8

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—I have just been reading the letter sent to you by Mr. K. Cantlie and published in your issue of June 21. He has put his finger right on the spot in his remark that it is the operating conditions in this country which so far have made it impossible to introduce 200-ton wagons, or even 40-ton wagons, except in very special cases. I agree with another point he has made, namely, that greatly improved container designs offer the best hope for the future.

As your correspondent states, Sir William Stanier's remark that the late Mr. Kelway Bamber's paper to the Institution of Locomotive Engineers on "Coal and Its Post-War Carriage on British Railways" should have been read to the Colliery Owners' Association, does not go far enough. Leaving out altogether the question of 40-ton and 200-ton wagons, which it is ridiculous to suggest in this country at the present time, I contend that a good deal more progress could, and should, have been made if there had been more real co-operation between the railway companies as hauliers of this coal traffic, and the private owners who have had to foot the bill.

Owing to the system under which we have had to work, the introduction of the 16-ton steel coal wagon (which I contend, again under the conditions prevailing in this country, is probably as far as we can go at present, with the exception in certain cases of the 4-wheel 20-tonner) has taken several years to become officially adopted. As I stated at the meeting, the blame for that state of affairs must not be put upon the shoulders of private owners, designers, and builders.

Yours faithfully,
DUNCAN BAILEY
Chairman & Managing Director

The Institute of Transport Endowment Fund

The Institute of Transport,
15, Savoy Street, Victoria Embankment,
London, W.C.2. July 3

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—For some years, members have been frequently asking the question, when are we going to have our own building? It has seemed strange that this great industry should be without a proper home for the centre of its intellectual work when other industries and professions, far less ancient, are housed in stately buildings with ample facilities for library, meetings, research and information services, and so on. But transport was late in waking up to its responsibilities, for, as you know, our institute was founded as recently as 1919, and independence comes only by deserving it and not wishing for it. With a membership of over 6,500 and a record of good service, including the provision of the main transport literature in this country during the past 26 years, the time has now come when the institute can, with full assurance, ask for such a measure of support from the industry and from individuals as will enable it to carry into effect its programme.

Last year the Council approved the policy of securing a permanent home for the institute, and it has been decided that the best way of implementing that policy is to take steps now to appeal for an endowment fund for the institute, to

enable it to secure suitable and worthy premises (not necessarily permanent at this stage), and to maintain and use those premises for the purpose of extending and more adequately applying the objects of the institute, particularly as regards library facilities, accommodation for meetings, discussion groups, research activities, and so on, in London and the principal centres outside London. There is a great need, too, for a centre for the reception of visitors to this country.

In support of this appeal, I should like to quote some words I used at the last annual general meeting:—

"An Institute of Transport, as the educational and research centre of one of the country's greatest industries, is worthy of its own home with its own front door. Such a home would be a visible symbol of the essential unity of transport and of its high place in the National life. It would help materially to focus the finest intellectual work on transport, and it would be an inspiration to the industry and would still further enhance the pride of the industry in itself. Pride of vocation is a worth-while thing, and fortunately for the country, in transport, has counted for something during the past six years. A home of our own, too, would enhance the public regard for transport and be of inestimable value in receiving transport visitors from overseas. There can be no doubt that we have reached the stage when the institute is an essential and vital part of the industry, and what is good for the institute must be good for the industry."

There is no limit to the amount which can be put to a good purpose in the interest of the community and the industry itself, but we have £100,000 in mind. Generous promises of support are already forthcoming from a number of the great transport organisations in this country, and these to date amount to some £40,000. A sure foundation has therefore been laid, and with the interest and effort of all concerned with furthering the knowledge and status of transport in the life of the people, the future development of the great work for which the institute stands, can be assured.

May I appeal to you to make a contribution to the fund? No contribution can be too large or too small, and if you would prefer it a donation could be spread over a period of seven or more years, by entering into a deed of covenant. Subscribers who have completed deeds of covenant for at least seven years enable the institute to recover income tax, at the standard rate, on their subscriptions.

Yours sincerely,
F. HANDLEY PAGE,
President

Travelling Post Offices

Essex House, Essex Street,
London, W.C.2. July 5

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—You have referred in your columns to the restoration of Travelling Post Offices, but they possess a feature unusual in Post Offices that you may not post a letter in them, and as to this I would say: "T.P.O.—P.T.O. a new leaf."

In any case, is there any reason for this peculiarity, apart from any general—Post Office—principle involved of giving the public less service for more money? It is interesting to know that Sir Rowland Hill was buried in Westminster Abbey, not far from Treasury Chambers where his penny-post was killed.

Yours faithfully,
KENNETH BROWN

Cheap Fares

Cambridge. July 15

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—Is there not a slip in the interesting article published in your issue of July 12? Between 1924 and 1938 the percentage of passengers (other than workmen and season ticket holders), travelling at reduced fares, increased from 35 to 86.5 of the total. It was the percentage of passengers of all descriptions, travelling at reduced fares, that increased from 68 to 93 per cent. of the total. The inclusion of workmen and season ticket holders in the calculation gives the correct picture of the situation because workmen's tickets are now issued to all third class passengers using certain trains before specified hours of the day and a season ticket is simply a device for giving cheap fares to regular travellers.

In the Ministry of Transport returns, full fares are termed "standard or ordinary." This use of the word "ordinary" is misleading, as only 7 per cent. of the passengers carried in 1938 paid these particular fares, which have become "extraordinary." Further, the term "ordinary passengers" is used in the returns not for people paying full fares, but for all passengers except workmen and season ticket holders. Do you not think that the railway passenger managers might revise their terminology with advantage?

Yours faithfully,
EAST ANGLIAN

The Scrap Heap

MORE CIVIL SERVANTS

The number of civil servants in Government Departments on April 1, 1946, was 695,950, as compared with 374,819 on April 1, 1938. The number of industrial workers employed by the State on April 1, 1946, was 426,610, as compared with 204,445 on April 1, 1938.—*Lord Pakenham in the House of Lords.*

* * *

SEEDS OF REMEMBRANCE

Seeds from a hundred years old American beech tree, growing on the down platform at Stroud Station, G.W.R., have been taken "back home" for planting in America by G.I.s who used the station. The tree is a species uncommon to this country and difficult to grow here. It originally formed part of a plantation of trees which became engulfed in the building and extension of the station and other buildings.

* * *

COURTESY AIDS SERVICE

Into a London bus recently entered a fierce-looking man, who glared at the conductor and inquired gruffly: "Are you a courteous conductor?" Taken aback, the man stammered that he hoped he was. "Then," said the passenger grimly, "give me a three-halfpenny ticket," and he tendered a £1 note. Overwhelmed and speechless, the conductor meekly produced 19s. 10½d. change, and retired muttering.—*"Peterborough," in "The Daily Telegraph."*

* * *

50 YEARS WITH COOK'S

Mr. Donald White, chief uniformed representative of Thos. Cook & Son Ltd., and the original "Man from Cook's," celebrates this month his fiftieth anniversary with the firm. He recalls the days when Continental travel was considered a wild adventure, and when it was possible to go to America for £5.

In the past fifty years Mr. White has met every European monarch, most of the Indian Princes, and famous statesmen, diplomats, artists, and sportsmen. Many famous people have used his name when travelling incognito. He has an encyclopaedic knowledge of timetables, exchange rates, customs, and the numerous travel regulations of today.

* * *

PHANTOM PIPER

When Aldwych Tube Station was reopened in London recently—after being a bomb shelter for more than five years—an old story re-appeared.

It seems that when the station was fairly new it had a ghost. One evening after theatre goers had gone home a porter heard strange echoes coming along the tunnel. As a shuttle service from Holborn runs to this point, the official was evidently upset by the queer skirlings.

The sound grew louder. Calling his mate, the official waited for whatever ghostly thing might emerge from the darkness. Eventually it appeared about a minute ahead of the incoming train.

The spectre was a youth who played the bagpipes very badly. After an evening out he had "lost" his friends and walked into the tunnel unobserved. Happily he had enough sense left to come back before he became mincemeat.

The official never forgave him this escapade, however. He was asked: "How's your piper tonight?" to the end of his career.—*From "An Editorial Diary" in "The Glasgow Herald."*

NEVER TOO OLD

Railways are sometimes called upon to make refunds on unused portions of tickets, but the Canadian National Railways passenger department is looking for one to equal the request for a refund on a ticket 28 years old. It involves a ticket sold to a woman passenger in 1918 covering a trip from Vancouver to Camrose, Alberta, the return portion of which was not used. In a letter to Mr. Walter E. Dobbs, General Passenger Agent of the C.N.R., at Winnipeg, she explains that "I have been searching for the ticket for a long time, but now find that it had been tucked away while I was house cleaning." The ticket is unusual in that it contains a special section for the name and description of the ticket holder, a system which was quite commonly used at the time.

* * *

100 YEARS AGO

From THE RAILWAY TIMES, July 18, 1846

RICHMOND RAILWAY will be Opened to the Public on Monday, 27th July. Sixteen Trains each way daily.

FARES.

Express Trains.....	First Class	1s. 6d.
Ditto ditto.....	Second Class ..	1s. 2d.
Ordinary Trains.....	First Class	1s. 4d.
Ditto ditto.....	Second Class ..	1s. 0d.
Ditto ditto.....	Third Class	0s. 8d.

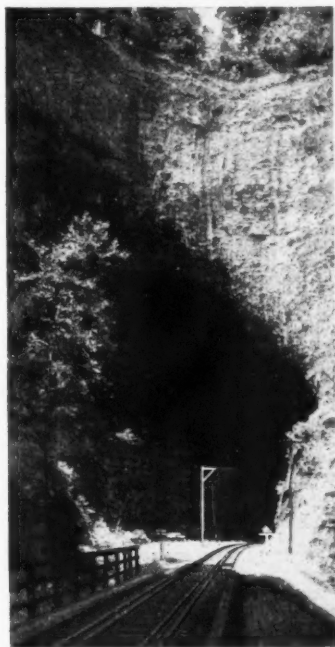
Stations at Wandsworth, Putney, Barnes, and Mortlake. Third Class Passengers will be taken by every Train, excepting the Express.

For full particulars see the Time Tables.

Nine Elms, July 17, 1846. By order of the Directors.

* * *

A Natural Railway Tunnel



The Bristol-Appalachia line of the Southern Railway System in Virginia carries a heavy traffic through this 788-ft. natural tunnel, the result of erosion in past ages. The railway, built in 1881, shares the tunnel with a stream

RAILWAY DAIRY HERD

The G.W.R. is to re-establish its dairy herd of Guernsey cattle at the Tregenna Castle Home Farm, St. Ives, now that some of the meadows have been released for grazing purposes.

Buck-Passers get By-Passed!



There's one person from whom you should never accept an excuse. Yourself! Dependability is the most important of all virtues on a railroad. And the worker who constantly makes excuses or passes the buck soon gets by-passed.

[From "Company Manners" issued by the New York Central system]

The Four Freedoms, under the present régime, appear to be:—

1. Freedom from Food.
2. Freedom from Fuel.
3. Freedom from Habitation.
4. Freedom from Freedom.—*Mr. A. Hodgkins, in a letter in "The Daily Mail."*

* * *

Why?

Why are carriages not so clean or in such good condition as they were before the war?

The brief answer is shortage of manpower and materials. Your wardrobe and mine is not what it was before the war. Generally speaking, we're shabby. It is a case of first jobs first. When you haven't enough labour to go round, the unessentials, regrettably, have to go. A sufficient standard of cleanliness to ensure healthiness is maintained, but that is all that can be done. A start has been made to bring our trains back to their pre-war high standard.—*From "The L.M.S. Answers Your Questions."*

* * *

MR. HERBERT MORRISON ON PRIVATE ENTERPRISE

Whether Mr. Herbert Morrison intended his broadcast on Sunday night to be first and foremost a eulogy of private enterprise may well be doubted; but that it was first and foremost a eulogy of private enterprise is beyond all question. Trade by trade the Lord President expatiated with delight on the progress made. The building industry [private enterprise] up from 722,000 workers a year ago to 1,084,000 by the end of April. Brickmaking [private enterprise]—"thanks to the great production effort by the industry, output has been practically doubled." "Or take motor-cars [private enterprise]. Last September the output was only just 1,000. By February it got up to 10,700. Last month it was over 18,000. Last month we actually made more motor-cycles for sale in this country than in 1935." "Radio sets [private enterprise] have increased from 11,000 monthly last summer to 84,000 in April this year. Steel production [private enterprise] is well above pre-war levels." That is not all. Exports "are reviving wonderfully." The monthly target for 1946 was an average of £62½ million. "But employers [private employers] and managers and workers are getting together and beating this target handsomely." Altogether private enterprise is rising to the occasion and saving the situation even more effectively than even the firmest believers in private enterprise could have predicted. Is Mr. Morrison really determined to go on throwing spanners into this effective machine?—"Janus" in "The Spectator."

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

BURMA

Goods Wagons Converted for Passenger Use

The Burma railways are suffering from a severe shortage of passenger rolling stock, and for some time practically no upper class vehicles were available. Goods wagons have had to be pressed into service to provide passenger accommodation, at first without the opportunity of adapting them for the purpose. The coaches that were still in service were in very bad condition, and in all cases the seats had been removed. Barely 10 per cent. of the pre-war passenger stock has been recovered in a condition fit to repair. In order to enable these coaches to be sent to the carriage and wagon shops, for bringing up to the normal standard, the

way), about 153 miles from Calcutta on the Dhanbad—Sitarampur line. Among the injured were the driver and fireman of the Bombay mail and the guard of the military special. Both the engines, four bogies of the mail and one bogie of the military special were derailed.

SOUTH AFRICA

Salaries and Wages

The General Manager, South African Railways & Harbours, has issued a special notice stating that now the Government has accepted the main recommendations contained in the report of the Public Service Inquiry Commission, the administration recognises that in determining the scales of remuneration of public servants on the one hand, and of railway servants

increased by an additional $\frac{1}{2}$ per cent. The notice states that legislative sanction for these amendments will be secured at the first opportunity. The revised scales of salaries and wages take effect from the beginning of January this year.

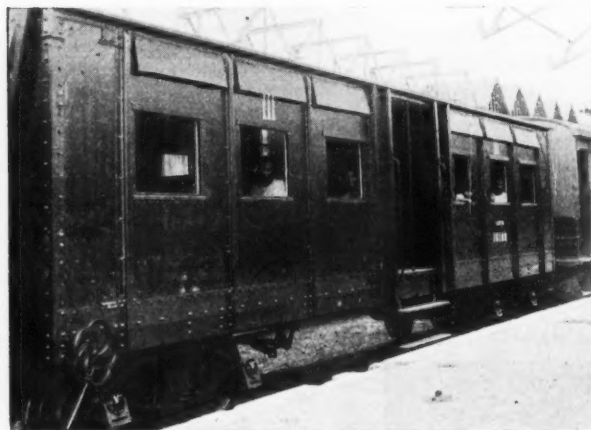
EGYPT

Passenger Coaches Ordered from Abroad

Apart from the diesel-electric trains on order in England (see *The Railway Gazette* of June 21) the Egyptian State Railways have orders placed for the undermentioned passenger coaches:—

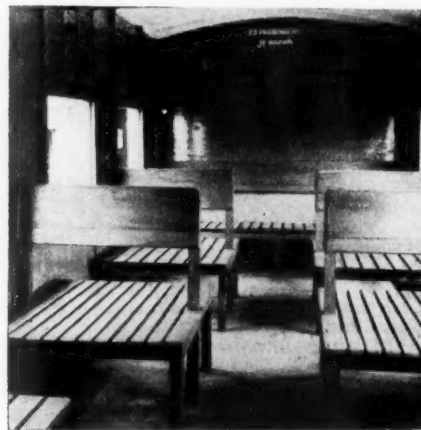
In England: Ten first class passenger coaches of up-to-date construction with Sheffield Twinberrow bogies and Timken roller bearings, Dunlopillo seating, iced water supply, and non-inflammable plastic interior panelling. These coaches are to seat 36 passengers; also forty third class coaches similar to the latest type of third class coach in service, but without a buffet compartment. These coaches are

Burma Goods Wagons Converted into Passenger Coaches



General view of goods wagon converted for use as a third class sub urban carriage

Public Relations Film Service)



The wooden seating in one of the 23-passenger compartments

(Government of Burma

railways have converted a number of wooden-bodied bogie goods wagons for use as third class passenger vehicles on suburban trains. The wagons have been fitted with windows and ventilators made in quantities by local carpenters, and also with handrails and steps, and each accommodates 46 passengers on wooden seats in two 23-seat compartments at each side of the central doors. It is hoped that by the end of the month sufficient first and second class vehicles will have been reconditioned to enable a twice-weekly service to be resumed between Rangoon and Mandalay, with more frequent trains later, and subsequently it should be possible to provide similar facilities on the Rangoon—Prome line.

INDIA

Ticketless Travel

The Special Magistrate, N.W. Railway, convicted 1,834 persons in May for ticketless and irregular travelling; 41 were sent to prison. Fines totalled Rs. 13,822.

Collision on E.I.R.

Twenty-three persons were injured when 3 up Calcutta—Bombay mail collided with a military special on the morning of June 15 at Kaloobathar (East Indian Rail-

on the other, the aim must be to achieve as great a measure of parity as is possible in the light of the different conditions prevailing in these respective branches of State employment. A further review of the situation has accordingly been made, and following discussions with the Consultative Committee of Railway Staff Associations, the administration has decided to grant further improvements in the salaries and wages of its personnel. [The recommendations of the Public Service Inquiry Commission, and their effect on railway finances, were dealt with in our June 14 and July 5 issues.—Ed. R.G.]

The rates of payment for authorised Sunday time and weekday overtime have been increased, and leave granted to officials in permanent employment has been reviewed. In future, officers whose earnings are not more than £259 a year will receive 14 days' non-accumulative leave and 11 days' accumulative; between this scale and that with a maximum of £425 a year, 14 days and 16 days respectively; and all over £425 a year, 14 days and 21 days respectively. As the revision of salaries and wages now authorised would materially affect the administration's superannuation funds, the scales of ordinary contributions of members will be

to be fitted with Timken roller bearings.

In Belgium: Forty third class coaches similar to those on order in England; and four first class air-conditioned passenger coaches similar to the four recently received from the Metropolitan-Cammell Carriage & Wagon Co. Ltd., of Birmingham (see *The Railway Gazette* of May 10). The first class coaches are of the Pullman type and are to be fitted with Sheffield Twinberrow bogies and roller bearings, iced water supply, and Dunlopillo seating. They are to seat 36 passengers.

Nile Bridge at Kafr-el-Zayat

The Egyptian State Railways are inviting tenders, which are to reach the General Management by 12 noon on September 2, 1946, for the construction of a new railway bridge over the Rosetta Branch of the Nile at Kafr-el-Zayat (Cairo-Alexandria line) and for the demolition of the existing bridge. The new bridge will comprise seven spans (six fixed and one swing) each 70 m. long.

The existing bridge was built by Stephenson and was the first bridge constructed over the Nile, replacing a transporter which proved inadequate to cope with the traffic. It was strengthened in 1897. The bridge comprises eleven fixed spans of

39 m. each and a swing span with two cantilevers of 31.95 m. each, providing two navigation channels of 26.5 m. width. Two railway tracks and roadways 2.75 m. wide on each side are carried. The bridge is 492.9 m. long. There is at present a permanent slack of 8 km.p.h., with pilotage, for all trains passing over the bridge.

Cairo-Tobruk Passenger Trains Withdrawn

The weekly express passenger service between Cairo and Tobruk (departing from Cairo on Sundays at 8.50 a.m. and arriving at Tobruk at 7.55 a.m. on Mondays; and leaving Tobruk at 7.10 p.m. on Mondays, arriving at Cairo at 6 p.m. on Tuesdays) was cancelled as from June 6. This train, which was usually hauled by one of the Stanier 2-8-0 freight engines of L.M.S.R. design from Cairo to Similla, and thence by two W.D. diesel-electric engines from Similla to Tobruk, carried chiefly military personnel. The military in future will use sea communication.

Supply of Steam Locomotives

The two 2-8-2 steam locomotives for which tenders were invited by June 26 (see *The Railway Gazette* of June 14) are of 75-cm. gauge for working on the Kharga Oasis Railway, and not for hump shunting at Gabbary, as previously stated.

UNITED STATES

Illinois Central Results

The ending of hostilities last year, with delay in reconversion, cost the Illinois Central System one of the sharpest 6-month traffic drops ever experienced. This is revealed in the company's annual report for 1945, which explains that operating revenues for the first half of 1945 exceeded those of any similar consecutive period in the history of the company.

Publications Received

State Management & Control of Railways in India. By L. A. Natesan. Published by the University of Calcutta, 1946. 10 in. x 6½ in. 496 pages. Price Rs. 12.— This remarkable work, which is mainly a study of Indian railway finance, rates, and policy during the period 1924-37, has a foreword by Sir Ralph Wedgwood, which includes a passage indicating his opinion of it. It reads: "There are difficult problems in front of the Indian railways and the Indian Government in their dealing with the transport question as a whole. Nothing, one would say, could be more timely than an objective review such as Professor Natesan offers to the reader in this work, followed by his cautious survey of the problems which will call for solution. He has traced with great patience the fortunes of the Indian railways since they emerged from the crisis of the first world war . . ."

The volume is based largely on statistics published in the annual administration reports of the Government of India Railway Board. The text is lavishly supported by documentary evidence compiled mainly from the proceedings and reports of standing committees of the Central Legislature and of expert committees upon railway finance and working. The author deals at great length with defects in control of operation in its endeavour to reconcile State management with commercial principles of working, but he admits that dangers commonly associated with direct operation by a State were in the main averted. There is a certain amount of

followed by a marked recession of more than 16 per cent. for the last half of the year. Total income in 1945 was \$241,199,798, a decrease of \$22,396,287 below 1944, while total expenses were \$229,793,497, a decrease of \$16,416,972 below 1944. The resulting net income available for other purposes was therefore \$11,406,301 in 1945, a reduction of \$5,979,315, or 34 per cent., as compared with 1944.

As a wage-payer, the Illinois Central was again in the hundred million dollar class last year, when its 40,915 workers received \$100,619,710, as compared with the \$103,790,138 paid to its 41,732 workers in 1944. Freight revenues for 1945 as a whole fell to \$184,772,357 from their 1944 peak of \$200,809,714, a decrease of 8 per cent. Passenger revenues fell from \$42,625,898 in 1944 to \$37,519,120 in 1945, a decrease of 12 per cent.

EIRE

Rates and Fares Reduced

The Minister for Industry & Commerce has approved the proposals of Coras Iompair Eireann (Irish Transport Company) for revision of its classification of merchandise and schedules of charges for merchandise traffic by goods and passenger trains; the new classification and schedules of charges came into operation on July 1.

The number of goods traffic classes has been reduced from nine to six, and the schedules now approved are in substitution of existing standard charges fixed by the Railway Tribunal long before the war. They represent substantial reductions of existing standard charges, and should prove a real benefit to the trading community.

There have also been widespread reductions in ordinary passenger train fares,

"washing of dirty linen," some of it, curiously enough, inadvertently, it would seem, for on page 84 Khyber railway tunnels appear to have taken wings to the Kangra Valley line, several hundred miles away. Professor Natesan's panacea for many financial difficulties is amalgamation of various railways, so that each new group can be independently responsible for its financial position, the poorer lines being amalgamated with the rich to make this possible. Commercially and theoretically this is doubtless sound, but there are practical considerations that cannot be ignored, as pointed out in an editorial in this issue. This otherwise excellent work would have been improved had the discussion of so much detail—descending to works that cost £150,000 or even less—been omitted.

B.T.H. Reminiscences—Sixty Years of Progress.—The British Thomson-Houston Co. Ltd., Rugby, has published a jubilee volume of reminiscences covering outstanding events in the company's history from the formation in 1886 of a London firm to sell the products of the American Electric Company—later the Thomson-Houston Electric Company. The existing patents of the American Electric Company, and exclusive right to manufacture, were purchased by a new British company formed in 1894 and called British Thomson-Houston Limited. The present B.T.H. company was formed in May, 1896, when the title of British Thomson-Houston Limited was changed to the British Thomson-Houston Co. Ltd. In the first five years of its existence the B.T.H. company

and city and provincial bus fares. It is estimated that as a result of these reductions, the community will benefit to the tune of £3¼ million a year. The scheme implements a promise made by the Chairman of the company at the annual meeting in March (see *The Railway Gazette* of March 29), when he stated that the board had decided to reduce rates and fares, although this might involve the company in a serious loss of profits. He expressed the opinion, however, that if the company was fully supported by the public, and more particularly by the business community, the reduced rates could be maintained.

The introduction of the reduced ordinary train fares coincided with the increased main line passenger service outlined in *The Railway Gazette* of June 21, and for the first time since 1941 it is possible to travel from many parts of the country to Dublin and return the same day.

HOLLAND

A Year of Reconstruction

Intensive efforts in the year from May, 1945, to May this year resulted in the Netherlands Railways having 1,800 miles of line open to traffic, as compared with the 1,974 miles operated in September, 1944. From that date up to the liberation of the country, the Germans had destroyed 1,221 miles. Electric services have been restored over 115 miles out of the 354 miles previously operated.

Passenger train-mileage increased from 1,183 on May 5, 1945, to 29,493 a year later, and goods train-mileage from 1,313 to 20,625 in the same period. These figures represent 68 per cent. and 85 per cent. respectively of the totals before the Germans embarked upon their programme of destruction.

supplied equipment for more than twenty tramway electrifications. Railway electrical work was soon undertaken, and the company began work in 1898 on electrical equipment for the power station, substations, and locomotives for the Central London Railway. It was soon found desirable to distribute the motive power throughout the trains instead of concentrating it in one heavy locomotive, and the company equipped the Central London trains for multiple-unit operation. Since then it has supplied multiple-unit equipment for railways all over the world.

The book deals with a period which includes two world wars and intervening years marked by a great expansion of technical achievement. Extensions in the distribution of electric power called for the manufacture of large transformers, of which the company has supplied many hundreds for the grid system alone, mostly for 132,000-V. circuits. Two chapters which provide some interesting comparisons in scientific progress are those dealing with the radio equipment manufactured by the company in the early days of broadcasting, and the numerous ground and air-borne radar installations developed and built to Government requirements by the company during the past war. The company was also a pioneer in another wartime development of wide potentialities, having built to the designs of Air Commodore Whittle the jet engine used in the first successful jet-propelled aircraft in the world.

The book is fully illustrated, and includes many portraits of personalities in the B.T.H. organisation.

Australian Gauge Standardisation

The project as approved by the Premiers' conference, including important modifications of the Clapp report

SIR HAROLD CLAPP'S report on gauge unification in Australia, summarised on pages 116-118 in *The Railway Gazette* of August 3, 1945, was approved with certain modifications by a recent Premiers' conference. The cost of this great gauge standardisation and associated works is estimated at just under £224,000,000, and the Commonwealth Government has agreed now to accept responsibility for half of this sum instead of only one-fifth which it accepted previously.

An agreement on these lines will be submitted to and ratified by the Commonwealth and State Parliaments. Meanwhile, a Railway Standardisation Division, with

4 ft. 8½ in. line from Bourke in northern New South Wales through Queensland and Northern Territory to Darwin, the Great Western Railway, authorised by the Queensland Government in 1910, should be constructed as a new trunk line of that gauge. The reason for the acceptance of this much more ambitious undertaking is that the line now decided upon will be far more valuable in opening up and developing the hinterland of Queensland. The original project involved a line beginning at Bourke and running northwards through Cunnamulla, Charleville, and Blackall, to Longreach. Thence to Hughenden and Dajarra it would have tra-

ently, been surveyed in detail, but it is estimated that its length will be about 900 miles, from Bourke to Camooweal.

South and Western Australian Modifications

Contrary to the Clapp report, it has been decided that the 3 ft. 6 in. gauge line from Port Augusta in South Australia to Alice Springs in Northern Territory shall be converted to standard gauge, but it is understood that, so far, the extension from Alice Springs to meet the Camooweal-Birdum section of the Great Western Railway at Newcastle Waters has not been sanctioned.

Although the independent Kalgoorlie-Fremantle line, to be constructed as a 4 ft. 8½ in. railway, as recommended in the Clapp report, is being surveyed, it has been decided now, according to our contemporary, *The Commonwealth Engineer*, that an alternative route southwards from Southern Cross and through Corrigin, so as to link up with Fremantle on the south side of the Swan river, shall be investigated.

SPECIALLOID CANADIAN FACTORY.—Specialloid Limited has formed a Canadian subsidiary company, Specialloid (Canada) Limited, with a factory at 425, River Street, Verdun 19, Montreal, which has been laid out for the production of Specialloid pistons for all types of vehicles operating in the Dominion. It is expected that the factory will be in full production by the autumn.

THE MAIDSTONE & DISTRICT MOTOR SERVICES LIMITED.—At the thirty-fifth ordinary general meeting of Maidstone & District Motor Services Limited, held on June 17, the Chairman, Mr. R. P. Beddow, referred to the substantial part played by the company in support of the war effort. Millions of special mileage were run in order to cater for wartime traffic, and during the war 407 million passengers were carried. Enemy action on the company's depots had caused loss of life and destruction of vehicles. The policy of the company was first to devote labour and vehicles, as and when available, to improving the stage carriage service, the mileage of which now had reached 99½ per cent. of the pre-war figure. The report and accounts were adopted unanimously.

L.N.E.R. CLYDE DIESEL-ELECTRIC PADDLE VESSEL "TALISMAN."—The L.N.E.R. diesel-electric paddle vessel *Talisman*, which has been on Naval service for about six years, is now sailing again with the L.N.E.R. Clyde fleet. The vessel was requisitioned by the Admiralty on June 24, 1940, and renamed H.M.S. *Aristocrat*, and served as an anti-aircraft vessel round the coasts of Britain, particularly in the Straits of Dover area, during the war. She also served as headquarters ship for the first British Mulberry Harbour established on the Normandy coast at the invasion of Europe in 1944, and has been credited with bringing down three enemy aircraft. The *Talisman* has been reconditioned by her original builder, A. & J. Inglis Limited, and has been brought as up to date as possible under present-day conditions. On the promenade deck the observation lounge has been enlarged and the bulwarks removed, and the deck below has been fitted out as a dining room. Immediately below is a tea room, and in the after part of the vessel, a lounge with easy chairs and settees has been provided.



Map showing principal railways and conversion projects

Sir Harold Clapp as Director-General, assisted by Mr. W. D. Chapman as Director of Civil Engineering, and Mr. F. J. Shea as Director of Mechanical Engineering, has been established under the Commonwealth Department of Transport. Transport, materials, and finance divisions will be formed as the work proceeds. In collaboration with the Standardisation Division, a committee representing the Australian and New Zealand Railway Conferences will prepare many of the standards and designs of railway equipment required.

The Great Western Railway Project

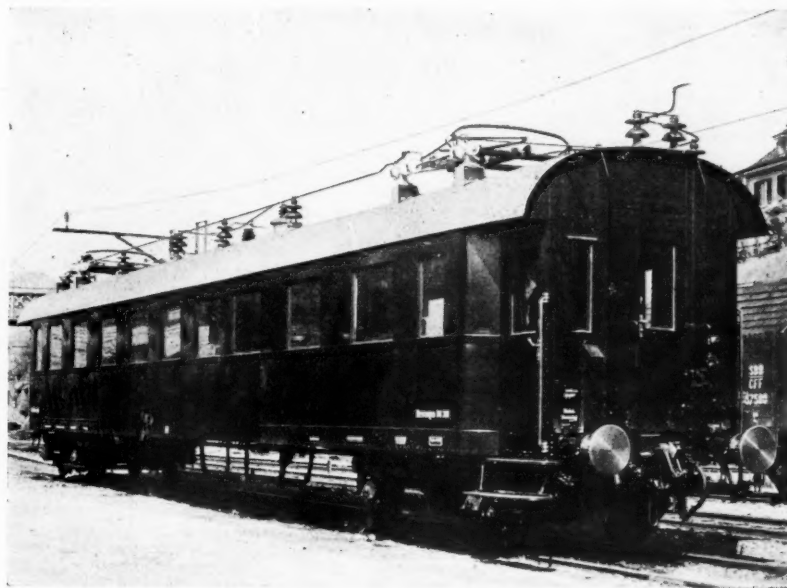
The principal modifications of the original Clapp report agreed by the Premiers are as follows: The Queensland authorities considered, and the Premiers agreed, that instead of the formerly proposed

versed the route of the present 3 ft. 6 in. line, converted to standard gauge. The new line projected will also begin at Bourke, but will run north-westwards to Hungerford, on the New South Wales-Queensland border, Thargomindah, Eromanga, Windorah, and Boulia, pass within ten miles of Dajarra, and join the formerly proposed line thence through Camooweal, on the Queensland-Northern Territory border. From Birdum to Darwin the present line, converted to standard gauge, will be followed.

Existing 3 ft. 6 in. gauge railheads at Quilpie, Yaraka, and possibly also Winton, will be connected by new branch lines with Eromanga, Windorah, and Springvale respectively on the Great Western Railway; Dajarra also will be linked with a point on that railway. The Great Western Railway alignment has not, appar-

Service Tests of Electric Locomotives—5*

Amsler type dynamometer car supplied to the Austrian railways for testing single-phase locomotives



A DYNAMOMETER car was supplied to the Austrian railways by Amsler & Company in 1938, and except for a few details was similar to that delivered to the Italian State Railways and already described in this series of articles. The Austrian lines, however, are worked on the 15,000 volts, 16 $\frac{2}{3}$ cycles, single-phase system, and this affected the design of some of the equipment. The electrical measuring apparatus was provided by the Vienna works of Siemens-Schuckert.

The car has two pantographs located over the bogie centres, as on a locomotive, and operated by compressed air. A folding ladder gives access to the roof, and is interlocked with the operating gear so that it cannot be used unless both pantographs are down; neither can the pantographs be raised into contact with the overhead con-

ductor until the ladder has been stowed away. An additional device ensures that the lowered pantographs are effectually earthed, thus dissipating any dangerous static charge. Current from the pantographs is led through a first set of busbars to a 15,000/100 volts pressure transformer and a 300/5 amperes current transformer, from which a second measuring range of 150/5 amperes is obtainable by modifying the connections. These transformers are mounted in the roof and feeds are taken from them to a second set of busbars at each end of the car.

Connection between the outgoing busbars and the adjacent locomotive, which has its pantographs down, is effected over a plaited copper strip, wound in sufficient length around a rotating compensation drum, turning on a vertical axis and mounted on insulators, as can be seen in the drawing reproduced. The connecting strip is temporarily attached to the

locomotive through an insulator which can be clamped to the roof. The recording instruments for high-voltage measurements are connected permanently to the above-mentioned measuring transformers.

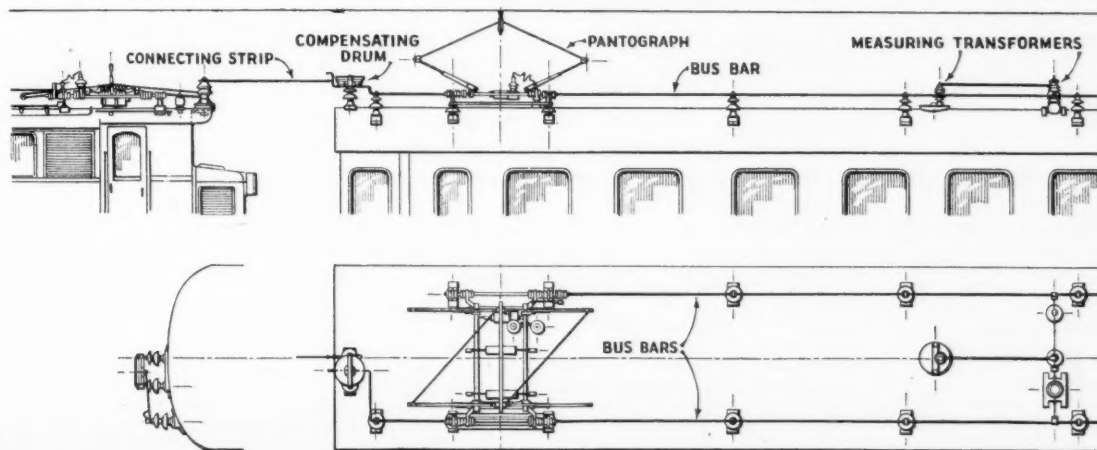
Thirteen portable measuring transformers of various sizes are provided for testing the internal circuits of the locomotive, that is, those on the low-voltage side of the main transformer. They are placed within the body of the locomotive, and their connections are made in every case to suit its arrangement. Their secondary terminals feed over a common 20-core cable to a large connection box arranged on the front wall of the car. This cable is heavily insulated and braided over its entire length to the locomotive, where it branches into a number of single strands, each consisting of the two conductors of one circuit contained in an individual leather sheath.

Outside each end of the car is a complete set of connection boxes, arranged on the left half-wall, namely: 2 (1 spare) large monobloc 20-plug boxes for the secondary circuits of the measuring transformers; 1 small monobloc 8-plug box for the telephone lines; and 3 small boxes, each with 19 individual plugs for occasional temperature measurements on the windings of the main traction motors (thermocouples or resistance thermometers) or for taking other electric particulars at will; or even for thermal measurements on steam locomotives (temperatures, steam pressures, smoke gas analysis).

Location of Measuring Instruments

The measuring instruments for single-phase working are so bulky that it is no longer possible to group them together on one common board, as it is with d.c. operation. Only the instrument board for thermal measurements on steam locomotives has been kept inside the recording table compartment; the entire electrical measuring equipment has been centralised in a special compartment adjoining the table compartment, and comprises three instrument boards, as follows:—

1.—On the rear partition wall: That dealing with the total electric energy supplied to the locomotive from the overhead



Arrangement of pantograph and connections between car and locomotive

* Part 1 appeared in our March 1 issue, Part 2 in our March 29 issue, Part 3 in our April 26 issue, and Part 4 in our June 21 issue

line, i.e., for the electric values on the line side of the main transformer.

2.—On the forward partition wall: That dealing with the values relating to the traction motors, i.e., for the majority of those on the secondary side of the main transformer. (The location of these boards corresponds in position with their functions, the rear one being associated with the car pantographs and the forward one with the locomotive motors.)

3.—On the left-hand side wall: The board carrying the kWh-meters for the circuits relating to both the above boards, and all the measuring instruments for the auxiliary machinery of the locomotive; ventilating fans, air compressor, lighting set, transformer oil circulation pump, and so on, and the train heating.

The rear transverse board carries the following recording instruments:—

For primary circuit—

Voltmeter ...	0-18,000 volts
Ammeter ...	0-300 or 0-150 amperes
Wattmeter (useful) ...	0-4,000, or 0-2,000 kW
Wattmeter (reactive) ...	0-2,400, or 0-1,200 wattless kW.

On the forward transverse board there are:—

For traction motor circuit—

Voltmeter ...	0-1,000 volts
Ammeter ...	0-500 amperes
Wattmeter (useful) ...	0-500 kW
Wattmeter (reactive) ...	0-500 wattless kW.

The reactive (wattless kW) indication replaces the power factor indication, as in many modern power plants. (This practice is chiefly of interest in connection with arriving at rates of payment for energy supplied, and its use in a dynamometer car is a matter still open to discussion.) The wattmeters each have a reversing switch for rectifying negative deviations of the pointers when running under regenerative braking. This is not necessary with the ammeters, the current being alternating, but the wattmeters record the product of two a.c. values including phase lag. Their deviation therefore depends on the sense of the transient energy.

The forward movement of the diagram

paper used with the above eight instruments is proportional to the time only, although Amsler & Company had wished to have also the alternative arrangement, for use at will, in which it is proportional to the distance travelled. The movement is effected by small synchronous motors, fed from the 15,000/100 volts transformer. All these instruments have electromagnetic scribes marking on the margins of their charts the kilometre indications given by an intermittent contact on the table itself. No special consideration was given to insulating the housings and cases from earth, as is done with d.c. equipment, since the measuring transformers provide protection against any accidental high-voltage effect.

The longitudinal board on the left-hand side wall carries a variety of small instruments for dealing with the circuits of the auxiliary equipment of the locomotive. The working voltage and power factor of the different motors comprised in it is practically constant, the loads varying so little, and simple periodic readings taken on the ammeters, together with the totals of the kW-hour meters, noted down by hand, are quite sufficient.

Below these small instruments there are two large kW-hour meters for measuring the total amount of energy supplied to the locomotive; two similar meters for the traction motor circuits; and a large multi-colour 12-curve recorder for the occasional recording of electric conditions occurring simultaneously, such as in the various circuits connected to the small junction boxes already mentioned.

In both pairs of large kWh-meters, one serves for measuring the positive or supplied energy, the other for the negative or recuperated energy, all four being equipped with a device preventing backward movement of the mechanism. The consumption of energy for train heating is measured by one of the small ammeters and one of the small kWh-meters. Change of the connections at the measuring transformer allows of the total train heating current, inclusive

of the dynamometer car, always being passed through these meters, no matter which end of the car is coupled to the locomotive, and is effected by a reversing switch whenever the locomotive is changed from one end of the car to the other.

All electric measuring instruments are rigidly fixed to their boards, which are of veneered oak, each suspended elastically on four rubber blocks.

As on the Italian State Railways' car, a set of portable high-precision instruments is carried, adapted to work with the measuring transformers, for making an occasional check of the recording instruments and kW-hour meters. A small compartment, right at the front of the car, contains shelves and drawers for storing and keeping these instruments, and the portable transformers, connecting leads, and other subsidiary items, when not in use.

Safety Devices

In certain other types of single-phase dynamometer car, the small compartment just referred to, or that immediately adjacent to the electrical instrument compartment, is replaced by a high-voltage cabin, clad with earthed steel sheet. The door of this is interlocked with the pneumatic pantograph mechanism. The cabin contains, besides the fixed voltage and current transformers for the 15,000-volt circuit, a large oil-break switch operated from outside and allowing of the entire car and the locomotive coupled to it being put out of circuit instantaneously. This cabin also houses the somewhat bulky transformers needed in connection with the train heating current.

After delivery, the car just described, was subjected to reception trials on the Saalfelden to Wörgl section of the Salzburg-Innsbruck line in the Austrian Tyrol, and diagrams were recorded similar in general principle, with allowances for the different system of traction, to those made on the Italian lines and already illustrated in this series.

(Concluded)

Electrification of Sorocabana Railway, Brazil

AFTER electrification of 105 km. of the Sorocabana Railway, up to Sorocaba, in 1944, and a further section of 35 km., up to San Antonio, in 1945, a programme has been drawn up whereby the line will be electrified as far as Presidente Epitacio by 1954. This programme provides for the electrification of some 294 km. of track, between Santos and Bernardino de Campos, from 1945 to 1947, and a further distance of 150 km., between Bernardino de Campos and Assis, in 1948 and 1949. The

section between Assis and Presidente Prudente, 185 km., will be dealt with in 1950-52, and that from Presidente Prudente to Presidente Epitacio, 104 km., in 1953-54.

Standards for the overhead installation are already in position as far as Laranjal, 187 km., and this work is proceeding satisfactorily in the direction of Rubiao Junior at km. 302.

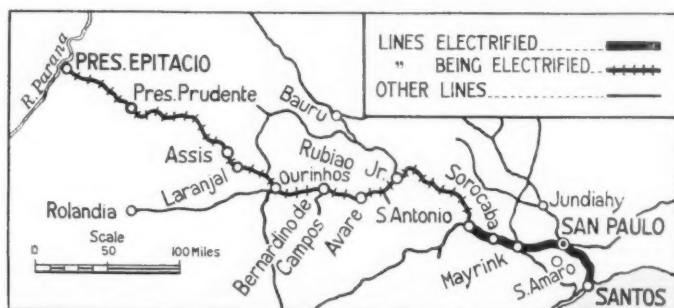
The construction of a branch line to link up Barra Funda with Evangelista de Souza, beyond the Santo Amaro dam, has also

been begun. This branch line is preparatory to a connection with the Mayrink-Santos Line, and forms part of the Sorocabana Railway plan of extension for when the territory concession of the San Paulo Railway terminates in a short time.

Diesel-Electric Locomotives

The Ministry of Transport & Public Works is calling for tenders for the supply of 30 diesel-electric locomotives for the Rêde de Vição Cearense, and the V.F. Leste Brasileiro. Early experiments with this type of traction in Brazil gave little satisfaction, but in 1944 and 1945 the Central Railway purchased 34 locomotives, including 20 of 1,000 h.p., and these are now giving good service between D. Pedro II and Pirai. Last year the National Department of Railways also placed orders for 20 locomotives of lesser power for various metre-gauge lines.

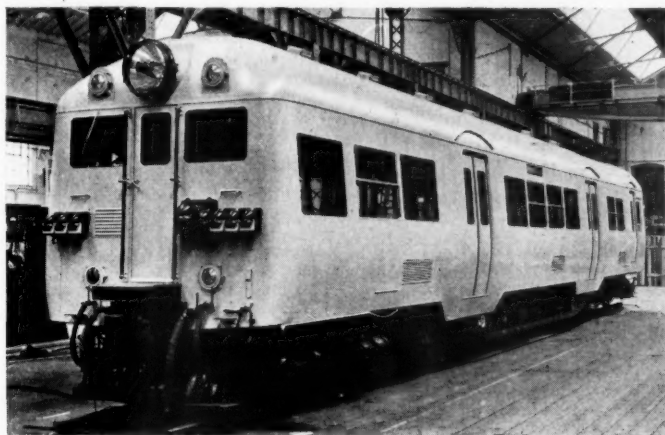
FURTHER ELECTRIFICATION OF REDE MINEIRA DE VIÇÃO, BRAZIL.—The line of the Rêde Mineira de Vição between Cruzeiro and Caxambu is to be electrified, and a new line built between Tres Coracoes and Pouso Alegre. Train journeys from Bello Horizonte to the extreme south of Minas Geraes will be reduced from 35 hr. to 14 hr. It is reported that the whole project will cost Cr. 188 million.



Extent of existing electrification on the Sorocabana Railway and plans for its extension

English Electric Motor Coaches for New Zealand

A repeat order to handle heavy suburban traffic at peak periods



TWO electric railway motor coaches, part of an order for three motor coaches and two trailer coaches placed by the New Zealand Government with the English Electric Co. Ltd., Stafford, were shipped from Liverpool Docks last month, and the illustrations below show the

coaches and their bogies being loaded on the mv. *Sussex* early in June.

The present contract is a repeat of one received by this company in 1936 for the six original 2-coach multiple-unit trains with which the electrification of the Wellington-Johnsonville line was initiated. It

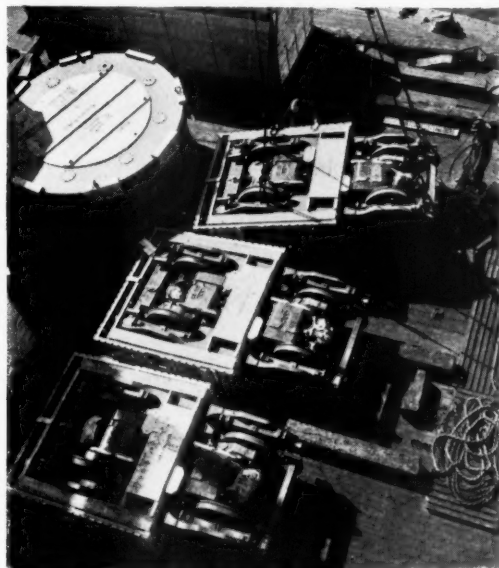
is believed, moreover, that the present two electric motor-coaches are the first to be completed in this country and shipped overseas since the war ended.

The coaches handle the heavy suburban passenger traffic at peak periods over the severe gradients of the Wellington-Johnsonville line, and each motor-coach is used with a driving trailer coach. These 2-coach units can be coupled together and operated in a multiple-unit as 4-coach or 6-coach trains, and acceleration of approximately 1.3 m.p.h. per second can be obtained with a laden 2-coach unit on the ruling gradient of 1 in 40. On the lines with easier gradients, the motor coaches can be operated with two trailers to form 3-coach units which can be made up into multiple-unit trains of six or nine coaches.

Direct current at 1,500 V. is collected from the overhead contact wire by a double-pan light-weight pantograph, and each motor coach has four 750 V., 165 h.p., one-hour rated motors connected in pairs in permanent series, one pair on each bogie. The motors are self-ventilated.

The coach equipment provides for electro-pneumatic control with automatic acceleration of the four motors, for multiple-unit train operation and for automatic train control by truck-operated trip gear.

The coaches are of all-steel welded construction; the interiors are sound-insulated. The coaches, bogies, and electrical equipment were constructed and erected at the English Electric works.



Three electric railway motor-coach bogies being shipped at Liverpool



One of the electric railway motor-coaches for New Zealand being loaded

FURTHER ELECTRIFICATION OF SPANISH RAILWAYS.—The Spanish Government has launched a 12-year plan for electrifying a further 2,500 miles of the national railway system at a cost of 5,000 million pesetas (£114 millions). This expenditure, according to the Spanish Minister of Public Works, is still only half that necessary to put the Spanish railway system on a level with the best in Europe, but will be offset partly by the saving of about 1,200,000 tons of coal annually. The new plan will involve great development in the Spanish in-

dustries for the production of electrical material. Besides 450 electric locomotives, 125 electric vehicles, 229 sets of machinery for substations, and new signalling equipment will be needed. The mountainous lines between Madrid and Avila, and Madrid and Segovia, are already electrified. Work is to begin on the Madrid-Alcazar de San Juan line for Andalusia, and will also start simultaneously on the suburban lines near Barcelona and the Asturias colliery area lines. As recorded in our March 8 issue, at page 266, the com-

plete scheme, of which the foregoing is the first stage, will involve no less than 8,000 miles of line.

ELECTRIFICATION IN MYSORE.—As a part of the first year of the electrification programme for Mysore Province, the electrification of the Bangalore-Mysore section of the State Railway system is planned, at an estimated cost of Rs. 9 million. This would minimise the import of coal, besides cutting down the cost of maintenance to an appreciable extent.

Regirdering the Nari Bridge, N.W.R. (India)

The economical and modern spans to carry 22½-ton axle loads were designed and fabricated in the railway workshops, and erected by the railway staff

FOR some time increasing traffic has demanded a heavier locomotive than the "HG" and "HGS" 2-8-0s which for several decades have successfully handled mail, passenger, and goods trains alike on the mountain grades of the North-Western Railway Bolan line to Quetta. To meet this demand, bridge strengthening was necessary, and, in particular, the regirdering of the Nari Bridge, four miles beyond Sibi, was recognised as essential some 15 years ago.

For reasons explained in an editorial note in this issue, this decision has only recently been acted upon, the railway Bridge Branch having fabricated and erected the seven 105-ft. spans of the half-

tops of the old main girders. For this purpose, 15-in. × 6-in. rolled-steel beams with transverse timbers were laid on top of the old longitudinal rail bearers, and the track was ramped at each end of the bridge.

Meanwhile, to provide the up- and down-stream staging, standard 18-ft. interchangeable steel columns and bracings were erected on a foundation of timber piles. The piles used under six of the spans held the staging clear of floods in the winter channel of the river, but under the seventh span the staging rested on shallow timber grillages founded on the dry bed. Altogether 288 piles were used. In addition to accommodating the new spans before slewing, and the old spans after slewing, the staging had to carry the full live load on the old spans while the old flat-plate bearings were being removed and the tops of the brick masonry piers were being rebuilt and concrete bedstones cast.

The new main girders, weighing 24 tons each, were assembled in an erection yard half a mile distant from the bridge, and because a pair of cranes was not available, the girders were railed, one at a time, on standard bogie rail trucks pushed out by a locomotive along the straight

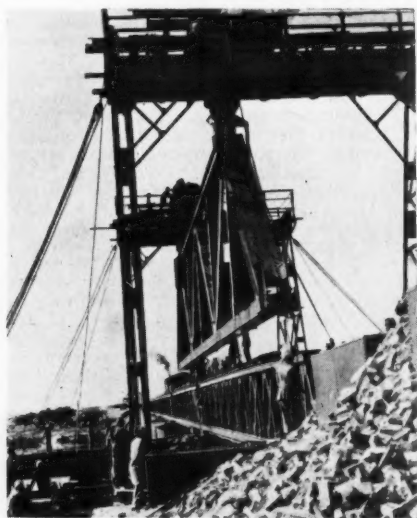
changeable staging; they were used to lift the girders on to the trucks.

The other pair, each with one leg on one of the main girders of an old span and the other leg on the staging, lifted the girders off the trucks and placed them on the staging where they rested while the cross-girders, stringers, and lateral bracings were riveted in position. The crabs on the gantries consisted of 6-ton hand winches fitted with compressed-air motors and mounted on diplory trolleys; 1-in. dia. wire ropes passing round 2- and 3-sheave pulley blocks were used for the lifts.

For slewing, the old and new spans were coupled together and mounted on 3-in. dia. cast-iron rollers running on pairs of R.S.Bs. Two gangs of half a dozen men pulling on ropes passing round 2- and 3-sheave pulley blocks supplied the motive power for pulling the combined weight of about 200 tons a distance of 21 ft. The process of slewing, from the breaking of the track on the old span to the relinking of the rails on the new span, took just over one hour.

For the removal of the old main girders, each of which weighed 36 tons, the railing process was reversed. The gantries on the bridge were turned round and the legs which had rested on the tops of the old main girders were shortened to suit the greater depth of the new main girders.

The first new span was slewed into position on January 4 and the others followed at intervals of 12 days. Sardar Khem Singh, a veteran bridge inspector of 45 years' experience on the N.W.R., was in charge of the work in the field.



One of the new main girders being placed on the staging at the bridge

through Warren girder type, with verticals, during January, February, and March last. The main girders are 18 ft. deep, and each span, including its cast-steel bearings, weighs 86 tons. Several improvements are embodied in the design and the whole superstructure is an excellent example of modern practice.

In the general and carefully prepared plan for the regirdering, carried out without interference with traffic, the new spans were assembled on staging alongside the existing ones; then the old spans were slewed out and the new ones rolled into position during intervals between trains. The first operation was to raise the track by about 2 ft. so that the tail of a crane working on the bridge would clear the



Underside of new span. Note the stringers between the cross-girders and lateral bracing, clear of the stringers; also the in-turned channels in chords eliminating notching of cross-girders where connected with main girders

track to the bridge. Two pairs of overhead gantries were used, one pair at the erection yard, and the other at the bridge. Those at the yard consisted of 40-ft. girders resting on bents of standard inter-

where the average number of men employed was 350. The whole of the work, including the fabrication of the new spans in the railway workshops at Jhelum, has cost Rs. 6 lakhs (£45,000).

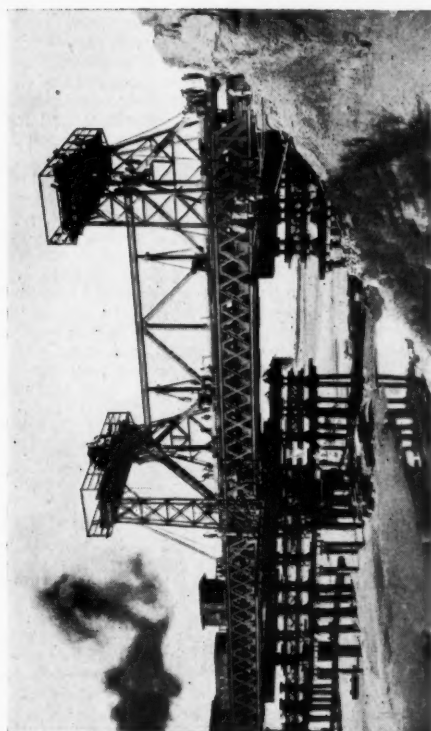
PROPOSED SEVERN & WYE ROAD BRIDGES.—Proposals for building a new road linking points near Bristol and Newport on the Exeter—Leeds and London—Fishguard trunk roads (A.38 and A.48) involve the construction of new bridges across the River Severn and the River Wye. The Severn bridge would have two spans of 1,000 ft. and a main span of 3,000 ft. The width has not been decided, but is ex-

pected to be about 100 ft. The specification for the Wye bridge is for a deck girder bridge with seven spans of approximately 100 ft., and one of 150 ft.

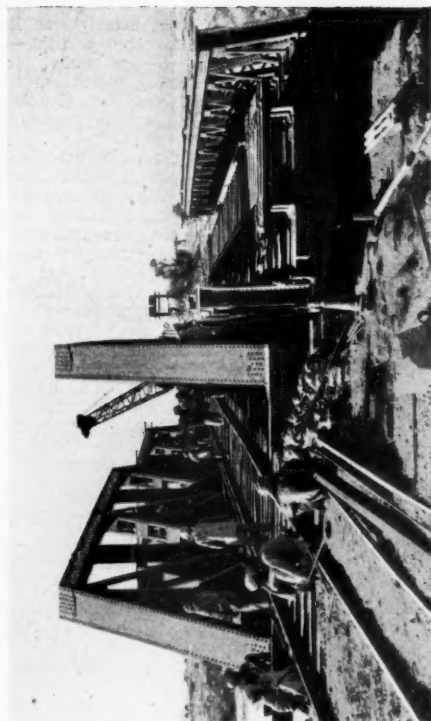
SAN PAULO DIVIDENDS.—The board of the San Paulo (Brazilian) Railway Co. Ltd. has resolved to recommend at the forthcoming general meeting the following dividends in respect of the year ended December 31, 1945: on the preference stock 2½

per cent., making with the interim dividend of 2½ per cent. paid in December, 1945, 5 per cent. for the year, less income tax; on the ordinary stock a dividend of 3 per cent. for the year, less income tax. The directors have transferred back to general reserve the sum of £200,000, which has also been increased by the transfer of £50,000 in respect of two specific reserves now no longer required, carrying forward £59,000 against £71,000 brought in.

Regirdering the Nari Bridge, Quetta Line, N.W.R., India



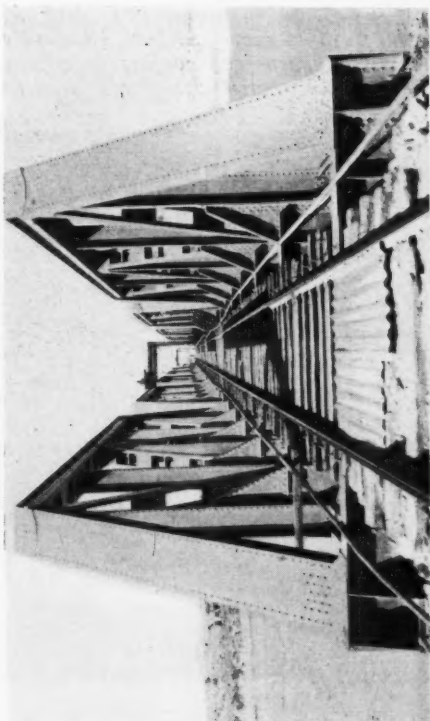
The first main girder for the first span of the bridge being lifted by the gantries before being placed on the staging on the downstream side of the old span



The old (on right) and new spans after slewing the first span on January 4, 1946. Note the 14-ton crane erecting the floor system on the second span in the background



The first five new spans in position on temporary hardwood blocks before cast-steel bearings were fitted. Work in progress on other spans in background



New spans complete, except that the track is on temporary bridge timbers until the permanent bearings are fitted. The pipe lines are for water and compressed air

Cincinnati Union Terminal Roof Resurfaced with Aluminium Alloy

Some 32,000 sq. ft. of 14-gauge and $\frac{1}{8}$ -in. Alcoa alloy sheeting secured with 11,500 lin. ft. Alcoa battens and capping have been used to resurface the half-dome, barrel arches, and parapet walling



IN 1945 it was decided to resurface the roof of the Cincinnati Union Terminal with aluminium on account of its light weight, durability, and weather-resisting properties, and because it was in keeping with the extensive existing fittings and decorative features in that metal. The weight of the new roof covering is only about one-twentieth that of the old, which consisted of terra cotta tiling. The roof is supported by eight curved trusses of from 67 ft. 8 in. to 182 ft. span. The work was begun in mid-October and was completed by the end of January last.

It entailed stripping the old roofing so as to leave only a 30-lb. layer of felt overlying the concrete base. Over this felt was then laid a 1-in. layer of Armstrong cork, followed by a second layer of 30-lb. felt. Next was fixed a layer of 15-lb. asbestos felt placed with the outer surface dry. The roof was then ready for the Alcoa sheeting.

For the flatter parts of the roof, this was in the form of $\frac{1}{8}$ -in. Alcoa alloy

3S $\frac{1}{2}$ H sheets, but for the remainder of the dome and barrel arches, and also for the parapet walling, 14-gauge sheets of the same material were used. A large percentage of these sheets had to be cut to suit the taper required by the contour of the dome. This shaping was done beforehand, as was the folding of the edges of the sheets through 180 deg. for interlocking, and for fitting over the battens.

To secure the sheeting and yet allow for its expansion and contraction, holes were drilled through the layers of felt and cork and to a minimum depth of 1 $\frac{1}{2}$ in. into the concrete below, to receive expansion shields.

After the holes had been drilled and the shields placed, they were filled with caulking compound before the fixing of the holding-down bolts, which, like the cap bolts, were spaced at 22-in. centres. The battens, which are of Alcoa alloy 53-S, were slotted to allow for expansion. In all, 11,500 running feet of batten and cap were used, and the diagram below

shows in detail the W-shaped extruded batten and capping, and the manner in which they secure the sheeting.

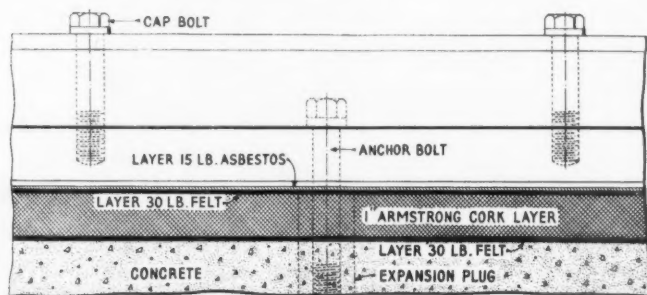
After the extruded battens had been bolted down, the sheeting was laid and secured with the capping strips—also of Alcoa alloy 53-S—and bolts, the work proceeding vertically and the sheets being placed in interlocking vertical sections, the upper sheets overlapping the ones below them.

The top sheet with the adjoining capping was fabricated with a covering cap at its lower end to prevent leakage. Step-like scaffolding, easily shifted both vertically and laterally, was used throughout, as seen in the illustration on page 73.

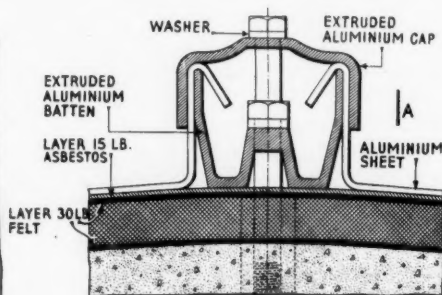
The work, completed in 2 $\frac{1}{2}$ months, was carried out by the Overly Manufacturing Company, Greensburg, Pennsylvania, the patentees of the special type of batten and cap used. The architects were Fellheimer & Wagner Associates, New York, supervising the work with the engineers of the Union Terminal Company. We are indebted to our American contemporary *Engineering News-Record* for this information and for the photographs reproduced. The new roofing can be seen from a great distance, and presents a handsome and distinctive appearance, fitting for this important passenger terminal.

THE "TINY" RETURNS TO NEWTON ABBOT.—At the end of June, the locomotive *Tiny*, which was stored at Swindon during the war, was returned to its old position on the platform at Newton Abbot Station, G.W.R. The *Tiny* is an 0-4-0 tank, with vertical boiler, and is the only surviving engine of broad-gauge (7 ft. 0 $\frac{1}{2}$ in.) days. It was built for the South Devon Railway in January, 1868, by Sara & Company, of Plymouth, and is still in working condition.

LONDON TRANSPORT RECRUITING.—The London Passenger Transport Board is displaying 24,000 small panel bills on buses, trams, trolleybuses, and railway cars, calling for skilled and unskilled labour for work on railway extensions and for maintenance of existing and projected services. Instrument makers for ticket issuing machines, clock makers for timing apparatus, signal installers, labourers for heavy track work, and fitters and body-makers for rolling stock construction and maintenance are some of the grades of the 3,000 workers urgently needed. Further improvements in the way of new services, requiring additional vehicles and the staff to maintain them, and extensions to existing services, are dependent upon the early recruitment of a good supply of these types of workers.



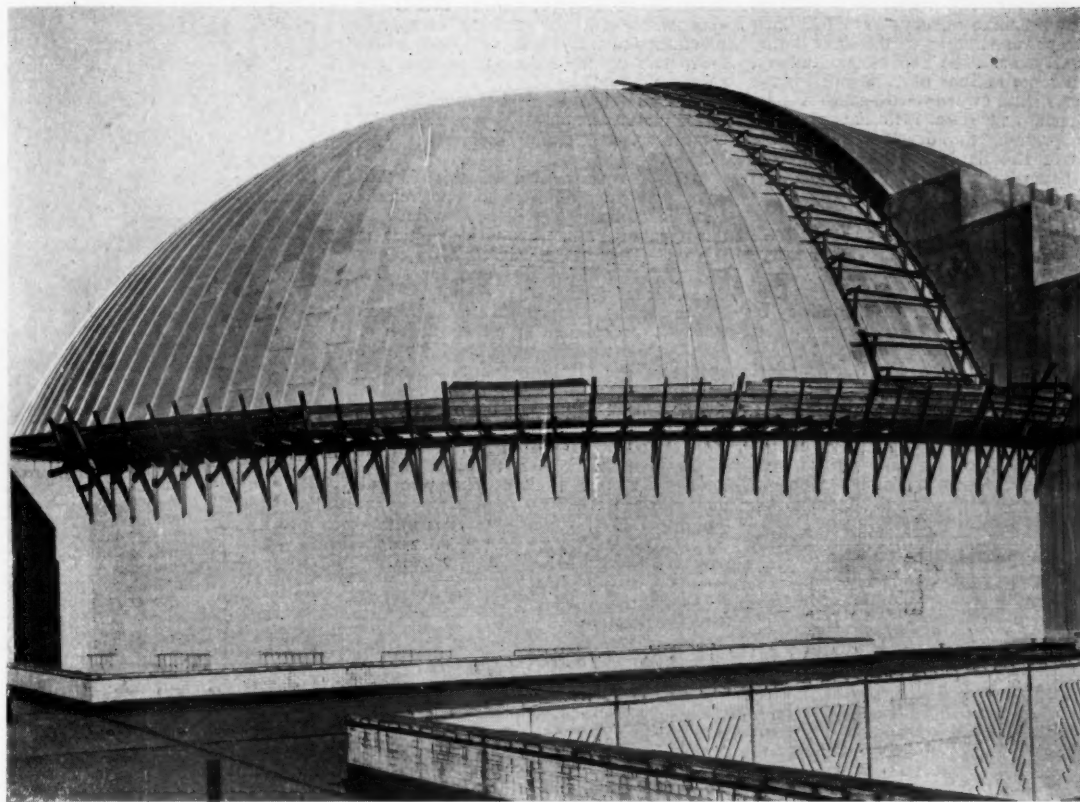
SECTION A.A.



CROSS SECTION A

Method of securing sheeting by W-shaped extruded batten and capping

Aluminium Alloy Roof for Cincinnati Union Terminal



The half-dome as now sheathed in Alcoa alloy. Note the tapering vertical rows of sheets and scaffolding



Alcoa alloy sheets being secured by capping strips bolted down to extruded battens of similar material



Details of sheeting at springing of barrel arch, showing extruded battens and capping strips, and also scaffolding

RAILWAY NEWS SECTION

PERSONAL

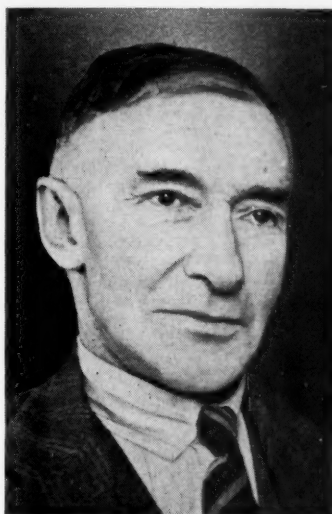
The Earl of Radnor (Lord Warden of the Stannaries) had the honour of being received by the King on July 10, when His Majesty conferred on him the honour of knighthood and invested him with the insignia of a Knight Commander of the Royal Victorian Order. The Earl of Radnor is a Director (formerly Deputy-Chairman) of the Southern Railway Company.

Mr. Edgar C. Bredin, M.I.Mech.E., M.Inst.C.E. (Ireland), who, as recorded in our July 12 issue, has retired from the General Managership of Córas Iompair Éireann (Irish Transport Company), will continue, at the request of the board, to place his services at the company's disposal for some time in a consultative

pany and the Dublin United Transport Co. Ltd., as from January 1, 1945. Mr. Bredin is the designer of the three-cylinder express locomotives of the "Maev" class, the most powerful engines in service in Eire.

Mr. Frank Lemass, A.C.A., Assistant General Manager, Córas Iompair Éireann (Irish Transport Company), who, as recorded in our July 12 issue, has been appointed General Manager, was educated at Belvedere College, and for a number of years was associated with the Dublin firm of auditors and accountants, Craig, Gardner & Company. When, some time before the change of the title to that of the Dublin United Transport Co. Ltd., Mr. Lemass joined the Dublin United Tramways Co. (1896)

Mr. Vincent H. Drewry, Stores Superintendent, London, of the Central Argentine Railway, and of the Buenos Ayres Great Southern and Buenos Ayres Western Railways, who, as recorded in our last issue, has retired, joined the original Central Argentine Railway in 1899 as a junior in the combined Secretarial & Stores Department. When, in 1902, the Central Argentine Railway was amalgamated with the Buenos Aires & Rosario Railway, under, for the time, the latter title, a separate Stores & Shipping Department was formed, in which he became the Assistant Stores Superintendent. Later the title of the company was changed to Central Argentine Railway, and Mr. Drewry served as Assistant Stores & Shipping Superintendent until 1934, when he was appointed Stores Superintendent. In 1936



Mr. E. C. Bredin

General Manager, Irish Transport Company, 1945-46



Mr. Frank Lemass

Appointed General Manager, Irish Transport Company



Mr. Vincent H. Drewry

Stores Superintendent, London, C.A.R., 1934-46, and B.A.G.S.R. and B.A.W.R., 1936-46

capacity. Mr. Bredin was educated at Mountjoy School, Dublin, and began his engineering training in 1905 at Gloucester. He joined the Great Southern & Western Railway at Inchicore in 1907; for some years he was attached to the Locomotive Engineer's Office, and was engaged particularly in research connected with fuel consumption. Subsequently he was appointed Junior Assistant to the Locomotive Running Superintendent. In 1911 he became Shed Foreman at Rosslare, and three years afterwards he became Assistant to the Running Superintendent, Northern District, Inchicore, of which he afterwards was District Superintendent. In 1916, he was appointed Assistant Works Manager, and five years later assumed the full duties of Works Manager, at Inchicore. On the formation of the Great Southern Railways in 1925 he carried out the re-organisation of the locomotive works of the constituent systems, and subsequently supervised their co-ordinated working. He was appointed Chief Mechanical Engineer in 1937. On the retirement of Mr. W. H. Morton in 1941, he became Acting General Manager; and in 1942 he was appointed General Manager. He became General Manager of the Irish Transport Company when it was formed and took over the undertakings of the Great Southern Railways Com-

pany and the Dublin United Transport Co. Ltd., as Accountant, he carried out a complete reorganisation of the accountancy system. With the change to the new title he became Secretary & Accountant, and he continued to fill that post during the existence of the company. On the formation of the Irish Transport Company, as from January 1, 1945, he was appointed Assistant General Manager. Mr. Lemass is a brother of Mr. Sean Lemass, Minister for Industry & Commerce, Eire.

Mr. A. S. Umplesby, Goods Agent, Darlington, L.N.E.R., has been elected Deputy-Chairman of the new North Eastern Area Council of the National Chamber of Trade.

We regret to record the death on June 19, at the age of 70, of Mr. J. H. Railton, who was Chief Traffic Manager, Western Australian Government Railways, from 1935 until 1940, when he retired.

We regret to record the death, on July 10, of Lady Fay, wife of Sir Sam Fay, General Manager, Great Central Railway, from 1902 to 1922, and formerly a Director of the Buenos Ayres Great Southern Railway Co. Ltd., and Buenos Ayres Western Railway Co. Ltd.

he was appointed to the control of the Stores & Shipping Department of the Buenos Ayres Great Southern and Buenos Ayres Western Railways, in addition to continuing in that capacity with the C.A.R. Mr. Drewry served from 1915 to early in 1919, first with the H.A.C. (Artillery), and subsequently with a commission in the Royal Engineers, attaining the rank of Major. During the recent war he joined the L.D.V., and continued serving in the Home Guard until it was stood down. Mr. Drewry visited Argentina in 1928.

Mr. Conrad Gribble, O.B.E., M.Inst.C.E., Deputy Chief Civil Engineer, Southern Railway, who, as announced in our July 5 issue, retires on August 1, commenced his railway career as a pupil of the late Mr. William Marriott, then District Engineer & Locomotive Superintendent of the Midland & Great Northern Joint Railway, at Melton Constable. In 1901 Mr. Gribble was Assistant Resident Engineer on the construction of the Breydon Viaduct, Great Yarmouth, and the Lowestoft Junction Railway. A year later he became Assistant in the office of the late Mr. W. J. Cudworth, Engineer, Southern Division, North Eastern Railway. In 1915 he was appointed Assistant to the Assistant Engineer (Maintenance), under



Photo] *[Lafayette]*
Mr. Conrad Gribble

Deputy Chief Civil Engineer,
Southern Railway, 1944-46



Mr. H. G. W. Gaut

Appointed New Works Assistant to
Superintendent of the Line, G.W.R.



Mr. J. Holden Fraser

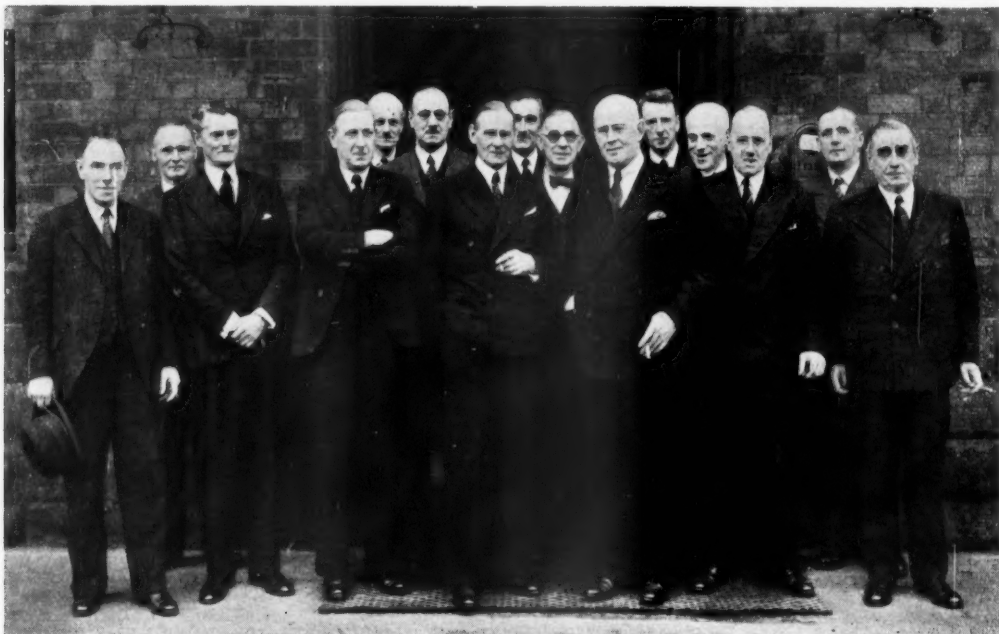
Appointed Assistant to Engineer (Signals),
York, L.N.E.R.

Mr. C. F. Bengough, Chief Engineer, N.E.R., and in 1922 was appointed Leading & Bridge Assistant to the Chief Engineer. Mr. Gribble joined the Southern Railway as Bridge Assistant to the Chief Engineer in 1927, and on January 1, 1928, was appointed Assistant Engineer (New Works & Bridges). He was appointed Deputy Chief Civil Engineer in 1944, in which appointment he has con-

tinued to deal with bridges and new works matters. In 1920 Mr. Gribble acted as Chairman of a sub-committee of engineering assistants, appointed by the Railway Engineers' Association to report on loading tables, permissible stresses, and other matters in connection with bridge design, and three years later he was appointed Chief Engineer to the Bridge Stress Committee of the Department of Scientific &

Industrial Research. Also while in N.E.R. service he assisted and represented the Chief Engineer on the British Engineering Standards Association Sub-Committee on Girder Bridges. He was awarded the Miller Prize of the Institution of Civil Engineers for a paper on automatic signalling in 1903, and he gained a Webb Prize, a Telford Gold Medal and a Telford Premium of that Institution in 1929. He

G.W.R. Officers Visit Metropolitan-Vickers Works, Trafford Park



A group photograph taken during a recent visit of Great Western Railway officers to the works at Trafford Park, Manchester, of the Metropolitan-Vickers Electrical Co. Ltd.

Left to right: Mr. E. W. Steele and Mr. K. Baumann, Directors, M.-V.; Mr. F. H. D. Page, Signal & Telegraph Engineer, G.W.R.; Mr. I. R. Cox, Managing Director, M.-V.; Mr. N. V. Raven, Traction Bureau, M.-V.; Mr. F. W. Hawksworth, Chief Mechanical Engineer, G.W.R.; Sir James Milne, General Manager, G.W.R.; Mr. P. W. Painter, Director, M.-V.-GRS; Mr. G. A. Juhlin, Director, M.-V.; Sir George Bailey, Chairman, M.-V.; Sir Arthur Fleming, Director, M.-V.; Mr. Gilbert Matthews, Superintendent of the Line, G.W.R.; Mr. K. W. C. Grand, Assistant General Manager, G.W.R.; Mr. E. E. Walker, Assistant Manager, Publicity Department, M.-V.; Mr. D. MacArthur, Director, M.-V.

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delivered the Institution Lectures to Students during the session 1932-33. During the period 1931-36 Mr. Gribble represented British railways on investigations into the strength of bridges on the Continent, carried out by a committee of the International Union of Railways. He has been for the last twelve years a member of the Forest Products Board of the Department of Scientific & Industrial Research. Mr. Gribble was made an O.B.E. in the King's Birthday Honours, 1945. He is for this year President, British Section of the Société des Ingénieurs Civils de France.

Mr. H. G. W. Gaut, Assistant to Superintendent of the Line, Paddington, Great Western Railway, who, as recorded in our July 5 issue, has been appointed New Works Assistant to Superintendent of the Line, Paddington, joined the company in 1903, in the Divisional Superintendent's Office at Bristol, where he has spent most of his railway service. He gained experience in the Correspondence, Statistical, Claims and Staff Sections of the office, and during the war of 1914-18 was with the colours from the early part of 1915. On demobilisation he became a relief clerk in the Bristol Division, and in 1924 he took charge of the New Works & Accident Section of the Divisional Superintendent's Office. In 1940 Mr. Gaut was appointed Chief Clerk to the Divisional Superintendent, Bristol, and he became Assistant Divisional Superintendent there in 1942. He was appointed Assistant to Superintendent of the Line in June, 1945.

Mr. J. Holden Fraser, B.Sc., A.M.Inst.C.E., M.I.R.S.E., who, as recorded in our July 5 issue, has been appointed Assistant to Engineer (Signals), York, L.N.E.R., joined the G.E.R. in 1917 as a Junior Assistant in the Stratford District, Civil Engineering Department. After a period with H.M. Forces, he returned to the railway in 1919, and was attached to the Signal Section. During the next few years Mr. Fraser was engaged on the extensive alterations to the mechanical signalling equipment to cater for the introduction of the intensive steam service, and subsequently on a large number of signalling economy projects. After the retirement of Mr. W. H. Bird, Signal Engineer, G.E.R., Mr. Fraser acted as Signal Engineer, and carried out a number of works which included then new features. He also prepared an extensive scheme for colour-light signalling in the company's suburban area, in which four and five aspect signals were included. On the amalgamation of the G.N., G.C. and G.E. Engineering Departments in 1924, Mr. Fraser was appointed Indoor Assistant to the Signal Engineer (Southern Area), acting also as Outdoor Assistant for the G.E., and southern half of the G.N., Sections. In 1926 he was appointed Signal Assistant at Edinburgh under the Engineer, Scotland, and in 1929 became Chief Assistant (Signals), Scottish Area. In 1931 he was appointed Assistant Signal Engineer (North Eastern Area), York, and since then has been associated with a number of extensive signalling projects. Mr. Fraser is a Member of Council of the Institution of Railway Signal Engineers.

Sir Ewart Smith, M.A., M.I.Mech.E., who, as recorded in our July 5 issue, has been appointed a Director of the London Midland & Scottish Railway Company, was born on May 31, 1897, and was educated at Christ's Hospital, and at Sidney Sussex College, Cambridge. After service in the Army, 1916-19, he was for a short period

with Palmers Shipbuilding Company, Jarrow; he joined Synthetic Ammonia & Nitrates Limited (now the Billingham Division of I.C.I.) in 1923, and in 1932 he was appointed Chief Engineer of the Billingham Works. In 1942 Sir Ewart Smith was seconded to the Ministry of Supply as Chief Engineer & Superintendent of Armament Design. In 1945 he returned to I.C.I. as Technical Director. He received a knighthood in the New Year Honours, 1946. He is a Member of the Councils of the Institution of Mechanical Engineers and the British Standards Institution, and a member of the Scientific Advisory Committee, Ministry of Works.

L.M.S.R. STAFF CHANGES

Mr. F. Marsden, Assistant to District Goods, Passenger & Docks Manager (Docks), Barrow, to be Assistant District Goods, Passenger & Docks Manager, Barrow, in place of Mr. C. E. Worthington, retiring.

Mr. H. Stokes, Chief Clerk, Goods & Customs, Holyhead, succeeding Mr. F. Marsden, as Assistant to District Goods, Passenger & Docks Manager (Docks), Barrow.

Mr. R. E. Scott, Chief Permanent Way Inspector, Barrow, to be Chief Permanent Way Inspector, Walsall, in place of Mr. F. W. Evans, retiring.

Mr. S. Trafford, Permanent Way Inspector, Knottingley, succeeding Mr. R. E. Scott as Chief Permanent Way Inspector, Barrow.

Mr. J. R. Sampson, Temporary Assistant District Controller, Leicester, to be Assistant to District Operating Manager, Nottingham.

Mr. T. Ratcliffe, Chief Commercial Clerk, District Goods Manager's Office, Bolton, to be Assistant to District Goods Manager, Bolton, in place of Mr. R. H. Tappley, deceased.

Mr. A. Webb, Running Shed Foreman, Buxton, to be Assistant to District Traffic Manager, Chester.

Mr. R. C. Harding, Commercial Representative, District Goods Manager's Office, Broad Street, to be Agent, Billingsgate, in place of Mr. C. Bland, deceased.

Mr. E. G. Pickersgill, Assistant District Locomotive Superintendent, Bank Hall, to be Assistant District Locomotive Superintendent, Leeds, in place of Mr. D. D. Scott, promoted.

Mr. W. J. H. Stanier, Running Shed Foreman, Buxton, succeeding Mr. E. G. Pickersgill, as Assistant District Locomotive Superintendent, Bank Hall.

Mr. E. Mason, Running Shed Foreman, Stoke, to be Assistant District Locomotive Superintendent, Stoke.

Mr. H. H. Mason, Running Shift Foreman, Toton, to be Assistant District Locomotive Superintendent, Inverness, in place of Mr. A. Marshall, resigned.

CANADIAN NATIONAL RAILWAYS

Mr. C. W. Wells, Freight Traffic Manager, Central Region, Toronto, has been appointed Assistant General Freight Traffic Manager for the system, with headquarters at Montreal.

Mr. G. S. Lindsay, District Baggage & Mail Agent, Edmonton, has been appointed General Baggage & Mail Agent, Western Region, with headquarters at Winnipeg, vice Mr. H. M. Spence, who has retired.

MEMORIAL SERVICE FOR MR. ASA BINNS
A memorial service for Mr. Asa Binns, who was Chief Engineer, Port of London Authority, from 1928 to 1938, President-

elect of the Institution of Civil Engineers, and a Past-President of the Institution of Mechanical Engineers, was held on July 11 at St. Margaret Patten's, E.C. Those present, in addition to family mourners, included:—

Sir Douglas Ritchie, Vice-Chairman, Port of London Authority, with members, officials, and members of the staff; Sir Peirson Frank, President, and Mr. F. E. Wentworth-Shields, President, 1944-1945, Institution of Civil Engineers; Sir John Thornycroft (Director, Southern Railway Company); Mr. O. V. Bulleid (Chief Mechanical Engineer, Southern Railway), President, and other representatives, of the Institution of Mechanical Engineers; Mr. A. S. Quartermaine, Chief Engineer, G.W.R.; Mr. V. A. M. Robertson, Chief Civil Engineer, Southern Railway; Mr. J. S. Tritton, Association of Consulting Engineers.

Dinner to Mr. Vincent Drewry

As was briefly recorded in our last week's issue, Mr. Vincent H. Drewry, on July 9, was entertained to dinner at Grosvenor House, Park Lane, W.1, on the occasion of his retirement from the position of Stores Superintendent, London, of the Central Argentine Railway, and of the Buenos Ayres Great Southern and Buenos Ayres Western Railways. Among those present were:—

Messrs. H. E. Adams, H. W. Adams, A. C. Allester, S. Appleyard, H. S. Aspinall, S. Ayers, G. J. Balfour, W. K. Bamber, S. Bant, H. W. Barnes, W. Bayliss, O. Beaven-Marks, G. V. Beesley, H. R. Beken, A. Bell, P. E. Biddlecombe, R. S. Bird, A. J. Boyd, H. D. Boyd, N. Brailsford, G. C. Brighten, E. F. Brown, F. G. Brown.

Messrs. L. A. Callow, C. Carnell, J. A. Carter, F. P. L. M. Cattoir, J. Cave, A. E. Cook, D. F. Cooper, A. G. Corrie, P. Coveney, M. A. Crane, J. Crawley, Brig. W. H. Crosland, Messrs. A. S. Davidson, H. E. Davis, C. E. Dee, D. M. Denholm, Cyril F. Dennis, W. E. Dobson, R. J. Drury, W. A. Dunbar, L. A. Dutton, D. J. R. Evans, Commander L. G. H. Farmer, Messrs. F. W. Fidler, J. S. Ford, J. Franklin, J. R. Garner, Commander H. V. Gaud, Messrs. G. L. Gent, G. Godfrey, W. H. Goodhind, G. C. Grant Lindsay, E. W. Greaves, W. M. Greener, H. W. Greenslade, Lt.-Colonel H. Gresham, Messrs. J. Gresham, R. Gresley.

Messrs. L. W. Hawkins, W. Hawthorne, P. C. Hayes, H. S. Heagerty, H. A. A. Hicks, T. H. Hodgson, R. L. Holland, H. Hope, Kenneth Horne, T. C. Hunt, C. A. Huntley-Robertson, J. D. Hutchison, A. J. Jack, T. H. Jefferd, W. C. Jones, G. Kaye, R. A. Kirkby.

Messrs. P. F. Laroche, L. J. Leclair, A. W. Lee, R. Lee, M. Lewis, A. W. Lindridge, E. E. Lloyd, M. C. Lloyd, F. Lockwood, J. S. Logan, S. N. Loosen, S. P. Loosen, E. D. Lottin, F. Lydall, Hon. R. G. Lyttelton, Messrs. C. Mabey, H. S. Mackintosh, E. W. Marten, F. Mason, R. E. G. Mayhew, O. McNery, S. H. Mercer, P. Middlemas, E. V. Mills, W. F. R. Mitchell, N. H. Morris, F. E. Morton, J. Murray.

Messrs. E. J. Newson, W. G. Nichols, A. Noblett, L. Ollerenshaw, T. H. Oman, H. W. Palmer, C. R. Pasley, R. B. Paul, S. J. Payne, K. F. Pearson, K. R. Pearson, F. D. Playford, K. Preston, A. S. Pye-Smith.

Messrs. F. R. Rand, S. W. Rawson, J. F. Ridges, Lord Riverdale of Sheffield, Messrs. L. L. Roberts, D. H. Robinson, A. S. Run-acres, C. A. Russell.

Messrs. H. P. S. Salter, M. K. F. Saunders, J. Spencer, N. R. Springris, R. Stent, W. R. S. Stephenson, A. W. J. Talbot, W. A. Taylor, D. Thoms, F. Towell, C. L. Trask, L. O. Tubby, A. C. Turner, F. W. Turner.

Messrs. J. W. Vaughan, W. T. Vizer-Harmer, L. J. Vosper, C. C. Waddington, A. J. R. Walter, A. H. H. White, L. C. Whitley, E. C. O'K. Wilson, R. L. Wilson, G. F. Wix, S. O. Woods, H. E. Wright.

Railway Charges Consultative Committee

L.P.T.B. fares inquiry resumed

The inquiry by the Railway Charges Consultative Committee on the adjustment of fares on the rail and road services of the London Passenger Transport Board was re-opened in London on Monday.

Mr. A. B. B. Valentine, Chief Commercial Officer, L.P.T.B., was recalled by Sir Bruce Thomas, K.C., the Chairman, to deal with a number of anomalies and points which were not clear to him over proposals for workmen's fares.

"On the Metropolitan line, for a 4d. minimum, a passenger will get a materially longer journey than he gets today for his present 3d. minimum?" "Yes."

"The net result of your proposals in regard to workmen's fares as far as finance is concerned, is that you'd get £46,000 additional revenue on the estimates than you would get by the application of existing fares." "Yes."

"That will give you about 4½ per cent. more than on your existing fares." "Yes."

"One result of the proposals would be that all existing workmen's fares containing halfpennies would be got rid of, subject to possibly two or three exceptions where the halfpenny might be retained because of the application of your 25 per cent. limit," the Chairman said.

Mr. Valentine agreed that because of a variation in treatment between the Metropolitan (including the Northern City) Line and other underground routes "creeping into" an order in 1940, workmen's fares were often a halfpenny dearer on the Metropolitan lines.

Under the new fares proposed many of these higher fares might be reduced by a halfpenny to bring them into line with the other routes. "The distinction was introduced for another purpose altogether and its effect on fares was not observed until more than a year afterwards," he said. "Workmen's fares between 4½d. and 9½d. on the Metropolitan line might be reduced in several cases. Fares of 11½d. to 1s. 4½d. would be increased, but never more than by 25 per cent."

Mr. Valentine said that the adoption of ordinary single fares for the workmen's return journey would enable workmen's tickets to be sold from the same machines as the ordinary single fares. The estimated revenue from workmen's fares would be £46,000.

Mr. Moelwyn Hughes, K.C., for the L.C.C., questioned Mr. L. C. Hawkins, Comptroller of the L.P.T.B.

Mr. Hughes: "To arrive at the adjustment which you think might be necessary, you have made a computation of your net revenue account for 1947?" "I have done my best to give the figure required."

Questioned by Mr. Hughes, Mr. Hawkins agreed that the accounts for the war years could not be the basis of forecasting the post-war period.

"There is a proposed increase in traffic takings of £4½ millions, yet we find that your net deficiency is increased by £3½ millions," Mr. Hughes said. "That means that between 1945 and 1947 there is a swing of about £8 millions."

Mr. Hawkins replied that in 1945 only 83 per cent. of the pre-war mileage was worked. In 1947 they had set out to work 110 per cent. of the pre-war mileage.

"That must mean a very big increase in expenses and in addition to that prices have been rising all round. During 1945 wages were increased for the staff then employed at something like £1½ millions.

Those facts account for the £8 millions turn-over figure."

Mr. Hawkins admitted that the estimated traffic takings for 1946 of £41,677,000 was purely an arithmetical figure based on the first 22 weeks equated to the full year.

Mr. Hawkins gave further traffic takings. For V-Week, £879,695; for the week after and ended June 15 (the week of the illuminations), £948,390; for the week ended June 22, £867,464. The last figure he described as "normal for the present time and the month of June."

"For the week ended June 29, the figure was £885,496, which is where we begin to see the results of the good weather," he said.

Mr. Hughes: "Your picture of the previous year is a picture of a steady rise in takings up to October and a drop from October to December. Then at the beginning of the year, up she goes again in excess of the previous year. Therefore, even assuming that the trend only goes upward as far as October, if you only take the first 22 weeks of the year, average them out and equate them to a year, you have in fact completely discounted any possibility of a rise in takings after the first 22 weeks?" "For the estimate for 1946, I agree. But it is the year 1947 I am estimating."

Mr. Hughes said that he had prepared a document, following the equating method of the Board, for the first 20 weeks of 1945. The Board's figures for the first twenty weeks of 1945 had been equated to a full year to compare with the actual figure for the year. "The actual total is better by £3 millions than the prophecy which would have been made by adopting a method which you advocate before the Committee now," Mr. Hughes told the witness. "You would agree that, using the equating method for 1945, as compared with the results actually achieved, gives you a much more gloomy picture of the year than actually occurred."

Mr. Hawkins: "You are comparing a period of war with a period of peace and you have taken as your basis for comparison a period in which there were still heavy rocket attacks. In fact, during those first weeks in 1945 traffic was showing a decrease week by week compared with 1944. You are taking a subnormal basis; in 1945 as between the first 20 weeks of 1945 and the first 20 weeks of 1946 there was an increase of car mileage of over 18 per cent. There will be an increase of car mileage operating 1946-7 but not of that order. The first mileage that was restored on the roads was largely the off-peak mileage, not the peak-hour mileage, because throughout the war, we endeavoured to maintain our industrial services. So I don't accept those figures as proving that my basis for 1947 is wrong."

Mr. Hughes: "The result of all the calculations is that since the end of the war takings have consistently risen?" "Yes."

Mr. Hughes: "The criticism which I shall make very severely later is that you are not entitled to say, in suggesting the method of increasing revenue, that an increase which has continued consistently from the end of the war has suddenly stopped."

Mr. Hawkins: "I have not assumed that the increase in traffic will stop." He added that on tubes and buses he had not assumed there would be any increase, but that there would be additional money

from coaches and new lines. They hoped to run some double-decker coaches in 1947 which would obviate single-deck coach car-mileage at peak hours.

Mr. Hawkins agreed, in answer to further questions, that advertising on the L.P.T.B.'s services was at a very low level, but he did not think it was still rising. For some time now the advertising facilities had been fully occupied.

Questioned about a maintenance allowance of £13½ millions, he said that most of that had been spent on repairs, but they had not been able to spend as much as they would have liked during the war years. "By May 18 we had actually paid into the trust fund, where these reserves are held, £32,727,000," he said.

Mr. J. Gaster, of the London District Committee of the Communist Party, also questioned Mr. Hawkins on the maintenance allowances.

Mr. Hawkins told him that in 1945, the L.P.T.B. paid out £21 millions in salaries and wages, but the figure had very considerably increased since then.

Mr. Gaster: "The net effect of your proposals for fares increases would be that each individual Londoner, taking into account your basis of estimating the population for the next year, would represent an increase of 79 per cent. over what he was paying in 1939."

Mr. Hawkins: "I cannot accept that."

At the commencement of the inquiry on Tuesday, Mr. Hawkins, in reply to a question from Mr. Gaster, said that on June 30, 1939, the staff employed by the L.P.T.B. was 86,456. On December 31, 1944, it was 76,810, and on December 31, 1945, 83,610. The staff employed on June 29, 1946, had risen to 91,300.

"The figure for 1947 will be substantially higher. It is quite likely to approach 95,000," Mr. Hawkins said.

"In 1945, wages represented roundly 72 per cent. of the Board's own expenditure on maintenance, leaving out contracted work."

"During 1945, the proportion of materials to the total cost of our repairs work was increasing very rapidly."

Mr. Gaster: "As more materials become available, the tendency to increase the proportion of materials in relation to labour is likely to increase during 1947?" "No, because practically the whole of our complete renewal work will be carried out by contractors and not the Board's staff. We are not allowed to make our own rolling stock."

Re-examined by Mr. Craig Henderson, K.C., for the L.P.T.B., Mr. Hawkins dealt with Mr. Gaster's submission on Monday that under the new proposals the average Londoner would be paying 79 per cent. more for his fares than pre-war.

That figure was arrived at by taking the Board's traffic takings for 1938-39 and the assumed takings for 1947, and dividing each figure by the population of the Board's area. The cost per head for 1938-39 became £3 and for 1947, £5 8s. That figure was an increase in expenditure per head of the population of 79 per cent., Mr. Hawkins agreed, but not in fares. The figure of 79 per cent. reflected a 20 per cent. increase of the number of rides per head of the population at 18 per cent. longer distance per journey than before the war.

Unless fares were increased the average journey per head of the population for 1947 would have to be 520 as against 384 pre-war, he added. If the population increased by half a million the figure would have to be 494. Wages

Permanent Way Institution: Summer Meeting

increases recently would involve £1,780,000 over the whole of next year.

The Chairman: "If you were not controlled, your objective having regard to the Act of 1933, would be a somewhat different one to your objective here to-day?"—"It would be a substantially higher one because the fixed annual sum under the control agreement only enables us to pay about 3 per cent. on the 'C' stock while it is the obligation of the Board to pay 5½ per cent. In addition, we have an obligation to pay to a redemption fund for the repayment of the capital which again would need a very large sum of money. The Board is required to establish a reserve fund which ranks after the redemption fund."

The Chairman asked what effect a variation, one way or the other, of half per cent. in the estimate of expenditure and of the gross revenue for 1947 would have upon the estimated deficit.

Mr. Hawkins replied that half per cent. variation on expenditure would amount to £230,000, and half per cent. on receipts, £220,000.

Mr. Valentine, questioned by Mr. Hughes, said if a decision on the proposals was given on September 1, they could be introduced on May 1. Before May 1 they could bring into operation an increase in season ticket rates and the raising of the minimum 1½d. to 2d.

He admitted that if the new fares were not introduced until May, 1947, the increases gained, not being over the full year, would not amount to the £5½ millions total. The yield from May to the end of the year would be £4½ millions.

"How comes it then, with your estimated deficiency of £5½ millions that you have not come before the Committee with schemes to provide £5½ millions for 1947, the only year with which the Committee is concerned?" Mr. Hughes asked.—"Because it is not possible to devise satisfactory schemes to give precise targets of that kind."

Mr. Valentine said that there was evidence that the discrepancy in the season ticket rates between the main lines and tubes was causing a transfer of traffic to the tubes.

Mr. Hughes: "Is it not a fact that the whole question of these increases on main line railways is coming up for review late this year?"—"Yes."

"Isn't it possible that there may be changes in the main-line charges? Don't you think it is advisable to see what the charges will be before tying the Board to increases for next year?"—"It will be useful to know what the main-line charges will be in 1947. If they are altered there may have to be alterations in L.P.T.B. rates for things like season tickets."

Mr. Hughes questioned Mr. Valentine on the raising of the minimum fare from 1½d. to 2d.

Mr. Valentine said he anticipated it would mean a loss of 12 per cent. of the passengers travelling now on the 1½d. journeys, or 168,000,000 million passengers a year; half a million a day.

Mr. Hughes: "Half a million Londoners are going to walk every day and not use your forms of transport."

Mr. Valentine: "Or use bicycles, or not travel."

Mr. Hughes: "The pre-war penny fare is to be increased by 100 per cent., the pre-war 2d. fare by 50 per cent., the pre-war 3d. fare 33½ per cent., and the pre-war 4d. fare 25 per cent. Doesn't that prove quite clearly that you are imposing the heaviest burden upon lower fares?"—"Measured by percentage and not by amount, yes."

During the past week the Permanent Way Institution has been holding its summer meeting at Nottingham and on Sunday, July 7, over 60 members were enabled by permission of Mr. J. C. L. Train, Chief Engineer, L.N.E.R., to witness relaying operations between Daybrook and Leen Valley Junction. The party left Nottingham (Victoria) about 10 a.m. for Daybrook, whence they were conducted to the site of the work by staff of the Nottingham District Engineer. Relaying of track by steam cranes was in progress. Lengths of pre-assembled track in 60-ft. lengths, with 98 lb. R.H. rails, were laid in replacement of 45-ft. lengths of standard bull head track. The work was carried out under the direction of Mr. C. Wright, District Engineer, Nottingham. Mr. H. C. Orchard, Permanent Way Assistant, and Mr. G. M. Read, Chief Permanent Way Adviser, of the staff of the Engineer, London Area, were also in attendance. On completion of the visit the members took refreshment in one of the L.N.E.R. mobile canteens on the site.

On Monday a party of members visited the Butterley Company's works and inspected the steelwork construction shops, foundry, etc. At lunch after the inspection, Mr. W. Paterson, the Institution's Vice-President for Scotland, expressed thanks to the directors of the Butterley Company for the arrangements made and hospitality afforded. During the afternoon a visit was paid to the L.M.S.R. Toton Marshalling Sidings under the guidance of the Controller, Mr. T. Wakefield. Another party inspected Boots Pure Drug Company's horticultural experimental station at Lenton where experiments are made in plant nutrition and the control of insect pests and fungus diseases.

On Tuesday parties visited the L.M.S.R. Research Laboratories at Derby where guides explained the work carried on in the scientific investigations in engineering, metallurgical, paint, textile and physical problems associated with railway work. Other members went to the Stanton Ironworks Company works at Stanton where processes involved in the manufacture of spun pipes, both iron and concrete, were fully explained and demonstrated. After lunch the President of the P.W.I., Mr. V. N. M. Robertson, C.B.E., thanked the firm for its courtesy and hospitality, and on behalf of the directors, Mr. Percy H. Wilson, Deputy-Managing Director, expressed pleasure at a visit by Institution members.

On the afternoon of the same day a large gathering of members and ladies were received at the Midland Foundry of Taylor Bros. (Sandiacre) Ltd. Much interest was evinced in the f.b. rail points and crossings, both the 110 lb. section for L.N.E.R. and the new design 113 lb. section for the L.M.S.R. The firm entertained the visitors to tea, and this was followed by a concert given by the "Taylorian Follies," the works' concert party. At the conclusion the hosts were thanked by Mr. V. A. N. Robertson, C.B.E., who said that Taylor Bros. Ltd. always welcomed members of the Institution and afforded every assistance to visitors to inspect the works.

On Wednesday separate parties visited the Castle Tobacco Factory of John Players Limited, the Raleigh Cycle Company factory at Nottingham, and the factory and laboratories at Beeston of Boots Pure Drug Co. Ltd. In the afternoon a coach tour to the Derwent downs took

place and visits were paid to the Lady-bower, Derwent and Howden Reservoirs situated in North Derbyshire.

On Thursday, the final day of the convention, some members inspected the Hobwell Works of the Stanton Ironworks Company and among other items of interest saw the casting of railway chairs in sets of ten. Another party visited Derry & Sons Ltd. printing works at Nottingham. This firm has been associated with the Permanent Way Institution for many years, having printed the *Journal* and report of proceedings for over 40 years.

During the week suitable visits were arranged for ladies, and coach tours to Dovedale and to Melbourne and Charnwood Forest were made.

The convention was the first post-war gathering and was entirely satisfactory, due in no small measure to the efforts of a committee of the Notts and Derby Sections of the Institution under the Chairmanship of Mr. C. J. Chaplin, M.B.E., District Engineer, L.M.S.R., Derby South.

London Transport Reunion Dinner

The second of two London Transport staff reunion victory dinners was held at the Connaught Rooms, Great Queen Street, London, W.C.2, on July 10. Some 1,000 members of the Board's staff, chosen by ballot from all departments, have attended the two dinners, the first of which was reported in our issue last week. Lord Ashfield, Chairman of the Board, presided on both occasions.

Speaking at the dinner on July 10, Lord Ashfield said it was a great pleasure to have with them Sir Reginald Hill, Deputy Secretary to the Ministry of Transport, and other representatives of Government departments; also Lord Horder, who advised the Board on the health and welfare of the staff, and representatives of the trades unions, who played such a great part in contributing to the high standard of efficiency they claimed for their undertaking. Lord Ashfield added, amid cheers, that his own medical report from Lord Horder suggested that he could carry on indefinitely.

In addition to the physical restoration of services and equipment, the Board now had to restore to the full its long-established tradition of courtesy to the public.

Lord Ashfield regarded staff relations as the fundamental problem of the Board. Its journal, *Pennyfare*, would be recast and improved so that all might have the opportunity of taking a lively interest in the Board's affairs, and special publications would be issued so that members of the staff might know more about the work of their colleagues in other sections.

The time had come when not only the salaried but also the wages staff must have the opportunity of learning about industrial progress, particularly in their own industry. The Board therefore was planning to allow men in all ranks of the service to visit other undertakings, not only in this country and within the Empire, but also in the United States and other countries.

Lord Ashfield concluded by saying that it would give him the greatest possible pleasure to have it said that a member of the staff beginning at the lowest rung of the ladder had risen by his own exertions to be Chairman of the Board.

Parliamentary Notes

L.M.S.R. Bill

The London Midland & Scottish Railway Bill, as amended, passed the report stage in the House of Commons on July 2, and was read the third time and passed on July 5.

Railways (Valuation for Rating) Bill

Lord Walkden (Captain, Yeomen of the Guard) moving in the House of Lords on July 4 the second reading of the Railways (Valuation for Rating) Bill, said it had become necessary on account of war circumstances. He said that, for the first hundred years of railway business in this country, the rating of the companies' hereditaments had been done piecemeal by the parochial authorities throughout the kingdom. In 1930 the Government of the day had decided to promote a Bill, which afterwards became an Act, to arrange for national, instead of parochial, valuation. Two or three important bodies had been set up to deal with the matter, and the whole process had been modernised and simplified by the Act. The Government had set up the Railway Assessment Authority, charged with dealing with those railway assessments, and the Anglo-Scottish Joint Railway Assessment Authority to deal with matters arising from the fact that two of the great railway companies went over the Scottish border and did a good deal of business in Scotland, with the consequence that various points of Scottish law cropped up which needed separate consideration. Those two bodies consisted largely of representatives of the local rating authorities, various county councils, and borough councils. The strong associations which represented the local authorities assisted in nominating the major part of the personnel for the assessment authorities.

They had set to work in a businesslike way. The Act provided there should be valuations for rating purposes on a quinquennial basis, but, to begin with, they had taken two years only—1928 and 1929. They had made an ascertainment on that basis, and the rating charges for the ensuing five years had been levied on a foundation established on the 1928 and 1929 figures. Certainly, there had been some difficulty in getting the scheme running in practice, because there had been a good deal of dispute concerning the way calculations had been made. Although it had been found at first that the calculations might be unduly favourable to the railway companies, it was recognised also that they might not be perfectly fair to the local authorities. The authorities, therefore, had agreed to a revision of some of the methods of calculating assessments. After that, they had got on very much better up to the year 1939.

In war circumstances the Government had had to take over the whole of the railways of the country. The war covered the valuation period 1940-44: inclusive. The present Bill was designed to deal with the consequence of that fact, because the valuation made on the basis of that period would affect charges to be made on railway companies by the local authorities for the period 1945-50—the current period. They had been working hitherto on the 1935-40 findings, so what they wanted now was an assessment for the ensuing period. Part of the arrangement for arriving at the assessment was based on the net earnings of the railway companies, and of course those had been affected greatly by war factors. Their average net earnings during the pre-war period, the period im-

mediately before the recent war, had amounted to about £38,000,000 a year. The Government eventually, after a previous trial of another agreement, had agreed with the railway companies to give them a total sum of £43,000,000 a year as rental as against the £38,000,000 average. That had been considered by the Government quite a fair arrangement. But during the war, railway traffic had increased so enormously, both in passengers and in merchandise business, that the net revenues had gone up to £79,000,000 a year.

Obviously, to make rating arrangements on that high level would be very unfair to the railway companies, because there would be quite a different level in the post-war quinquennium. It had been roughly agreed that they should be rated on the basis of the £43,000,000 Government rental. Some of the local authorities had not quite liked that. They thought that they ought to share more in the benefits of the £79,000,000 revenue. The £36,000,000 difference, however, was not due to the actions of any local authority, or to those of anyone but the National Government in fighting the war. The money was all provided by the taxpayers, whether it was for workers travelling about for war work or for the movement of goods and material during the war period. That huge strain on the railways, which had been borne magnificently by the companies and the men, had brought in a total net revenue of £79,000,000 a year, of which the companies took £43,000,000. Working on that (the block lump sum which was apportioned out on an agreed percentage for the different companies), the Railway Executive Committee and the Government thought it quite unnecessary to keep any detailed records or to make any ascertainment as to the division of receipts between company and company. A lot of the traffic went over two lines—sometimes over three lines. As a result, there had been no information of the detailed earnings of the separate parts of various railways. Some of them might have had a lot more traffic than others because they happened to lie in the war working areas, as a large part of the Southern Railway did.

In effect, the Bill provided that future assessment arrangements could be made on the basis of the Government payment to the railway companies, and the Government believed that it would work out well in practice. The first schedule showed the figures on which the rateable value would be based. Of course, the rateable value was different from the total net earnings. The schedule also showed the rating for distribution between the Scottish local authorities and the English local authorities, respectively. The proposed new basis was intended to cover only the immediate period that was due for valuation now. The Bill had been promoted to make the work more expeditious and more satisfactory. Local authorities had been very helpful and reasonable, although somewhat disappointed in not receiving more out of the arrangement.

The railway companies had averaged a 12·7 per cent. improvement in their total net revenue under the Government arrangements, and on that basis the local authorities themselves would get an appreciable improvement on what they had before—something like 14 per cent. That should be gratifying to them, and, broadly speaking, the whole arrangement had been thrashed out amicably by all parties concerned. He might qualify what he had

said about the disappointment of the local authorities by saying that they had agreed to this arrangement.

Viscount Swinton said the House was indebted to Lord Walkden for giving such a clear explanation of a complicated Bill. It was a Bill which had been carefully considered by the Government with all the interests concerned, and, unlike so many other Bills, it had obtained, he understood, agreement by everybody. The Opposition welcomed the Bill.

The Bill was read a second time and committed to a committee of the whole House.

Questions in Parliament

Compensation for Stolen and Lost Goods

Major C. E. Mott-Radcliffe (Windsor—C.) on July 8 asked the Minister of Transport what was the total amount which the railway companies had paid in the last financial year by way of compensation for goods stolen.

Mr. Alfred Barnes (Minister of Transport) stated in a written answer: The total amount paid by the railway companies during the year 1945 as compensation for articles lost or stolen was £2,525,405. Separate figures for thefts are not available.

Sleeping Accommodation on Trains

Commander Douglas Marshall (Bodmin—C.) on July 8 asked the Minister of Transport for what reason Government officials had priority for sleeping berths on trains now that the war was over; and whether he would forthwith issue instructions that such preference was to be terminated.

Mr. Alfred Barnes: In view of the heavy demand for sleeping berths it is still necessary to reserve a small number for persons travelling on urgent business of national importance where the journey must be made at night. Only 25 per cent. of all first class, and 8 per cent. of all third class, berths are now so reserved. Of these reserved berths, during a recent period, 68 per cent. were allocated to business men, 14 per cent. to Members of Parliament, 10 per cent. to the Services, and 8 per cent. to Civil Servants. Only a limited number of senior Civil Servants are eligible for these reserved berths.

Mr. E. H. Keeling (Twickenham—C.): Will the Minister say why it is more important for Government officials to have reservations than, for example, business people engaged in the export drive?

Mr. Barnes: It does not follow that a good percentage of the 68 per cent. which represents allocations to business men were not given to business men engaged in the export trade.

Mr. Keeling: Will they have priority?

Mr. Barnes: These percentages are the priority, and 68 per cent. of the 25 per cent. of reserved berths are allocated to the business men to whom Mr. Keeling refers.

Viscount Hinchinbrooke (Dorset Southern—C.): Are any persons considered nationally important now who were not considered so during the war, and if so, who are they?

There was no reply.

Mr. Hector Hughes (Aberdeen North—Lab.) on July 8 asked the Minister of Transport if he was aware that during the present holiday season there was a demand for more first and third class sleeping coaches from London to Aberdeen by both the L.N.E.R. and the L.M.S.R.; and if he would, before it was too late for this

Notes and News

Mechanical Draughtsman Required.—

An engineering firm in the Victoria district of London requires the services of a mechanical draughtsman. See Official Notices on page 83.

Assistant Draughtsman Required.—An experienced assistant draughtsman is required for the railway carriage and wagon department of a consulting engineers' office in London. See Official Notices on page 83.

Additional G.W.R. Restaurant Car Service.—As from Monday, July 15, restaurant car facilities have been provided on the 11 a.m. train from Paddington to Penzance and on the 8.30 a.m. from Penzance to Paddington.

Midland Bank Dividend.—The directors of the Midland Bank Limited on July 16 paid an interim dividend for the half-year ended June 30 last at the rate of 8 per cent. actual, less income tax. The same rate of dividend was declared a year ago.

Road Accidents in May, 1946.—The return issued by the Ministry of Transport of the number of persons reported to have died, or to have been injured, as a result of road accidents in Great Britain during the month of May last shows 405 deaths (compared with 424 in May, 1945), 2,886 seriously injured (compared with 2,442 in May, 1945), and 9,645 slightly injured (compared with 6,976).

Civil Engineers Required for the Colonies.—Civil engineers are required for the way and works departments of Colonial railways in West and East Africa. Applicants, who should be not more than 35 years of age, should have had experience of railway engineering practice, but candidates lacking this experience may be considered if otherwise well experienced in general civil engineering construction. For details, see Official Notices, page 83.

Channel Islands Airways.—Just over a year ago, on June 21, 1945, Channel Islands Airways Limited restored its services between London, Jersey, and Guernsey. At the present time the company is operating 183 scheduled services a week, linking the Channel Islands with each other and with Southampton and London (Croydon). In the first year of post-war activity 39,850 passengers and over a million pounds of mail and general cargo have been carried. The company has recently supplemented its fleet of six De Havilland 7-seat "Rapide" aircraft with

an 18-seat Douglas "C47" and a 32-seat Bristol "Wayfarer." The "C47" is at present operating a service at 8 a.m. from Croydon to the Channel Islands for the convenience of passengers arriving on night trains from Scotland.

International Tourist Conference in London.—The Travel Association of Great Britain & Ireland is calling a conference of international tourist organisations to be held in London in the first week of October next. Invitations to attend have been extended to the official tourist bodies of fifty countries. Principal items on the agenda will deal with the removal of existing travel restrictions and regulations.

G.W.R. South Wales Ports Sailing List.—After an interval of nearly seven years, the Great Western Railway has issued its South Wales ports sailing list for the convenience of manufacturers, merchants, shippers, and others interested in imports and exports of goods to and from the United Kingdom. The list, which will be issued monthly (price 6d.), contains, in addition to a record of the vessels, names of owners, agents and ports of sailing, and much useful information concerning routes, labour, storage, and tidal predictions for the ports.

L.M.S.R. Save-Water Campaign.—As part of a save-water campaign, the L.M.S.R. is painting red warning bands round locomotive water-columns at all stations and depots where water supplies are restricted in quantity, costly to provide, or not of a quality most suitable for locomotive consumption. The red band is a warning to drivers not to take water unless absolutely necessary. Before the war the L.M.S.R. consumed 10,758 million gallons of water annually for locomotive purposes. Consumption has gone up by some 5 per cent. because of increased traffic.

Devon General Omnibus & Touring Co. Ltd.—Profit for the year ended December 31, 1945, was £26,145, to which is added £19,858 brought forward from 1944, making a total of £46,003. After appropriating £1,359 to employees' assistance account, and declaring dividends of 7 per cent. on the cumulative preference stock, 10 per cent. on the ordinary stock, and also a bonus of 5 per cent. on the ordinary stock, the balance carried forward is £22,894. At the general meeting of the company recently, the Chairman, Mr. J. S. Wills, said the directors were convinced that it would be against the national interest for the industry to be placed

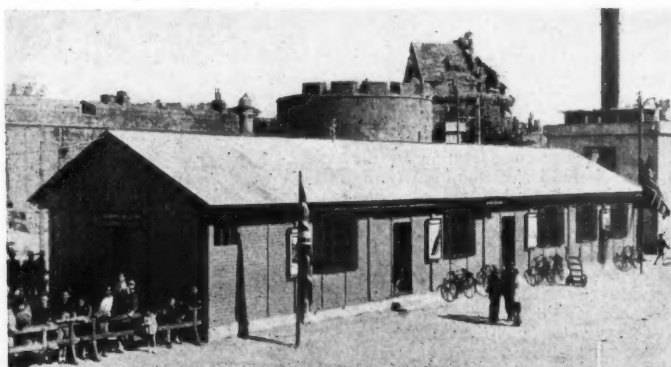
under any scheme of nationalisation or quasi-nationalisation, and they deemed it their duty to say so publicly at every opportunity. It would be an insult to suggest that the electorate had decided an issue of such enormous importance to the national future without an opportunity for full and careful consideration of the arguments for and against.

L.N.E.R. Express Derailed Near Hatfield.—The 7.5 p.m. express from Kings Cross to Aberdeen was derailed about 100 yd. from Hatfield Station at 7.45 p.m.

British and Irish Railway Stocks and Shares

Stocks	Highest 1945	Lowest 1945	Prices	
			July 16, 1946	Rise/ Fall
G.W.R.				
Cons. Ord.	60½	47½	57	+ 1
5% Con. Pref.	124½	104½	117	—
5% Red. Pref. (1950) ..	107½	101½	104½	—
5% Rt. Charge	137½	120	128½	—
5% Cons. Guar.	135½	117	125½	—
4% Deb.	118	106	116	—
4½% Deb.	119½	108	116½	—
4½% Deb.	124½	111½	122	—
5% Deb.	138	124	132½	—
2½% Deb.	83	74½	86½	—
L.M.S.R.				
Ord.	33	23½	27½	+ 1
4% Pref. (1923)	65	50	54½	—
4% Pref.	80½	69½	77	—
5% Red. Pref. (1955) ..	106½	99½	101½	—
4% Guar.	106½	97	101	+ 1
4% Deb.	110½	102	107½	— ½
5% Red. Deb. (1952) ..	110½	103½	106½	—
L.N.E.R.				
5% Pref. Ord.	8½	5½	5½	+ ½
Def. Ord.	4½	2½	3	+ ½
4% First Pref.	62½	49½	52½	—
4% Second Pref.	33½	24½	27½	+ 1
5% Red. Pref. (1955) ..	103	96	100	—
4% First Guar.	104½	95	99	+ ½
4% Second Guar.	97	89½	93½	—
3% Deb.	91½	82½	92	— 1
4% Deb.	109½	101	107	— ½
5% Red. Deb. (1947) ..	103½	100	100½	—
4½% Sinking Fund Red. Deb.	106½	103	104½	—
SOUTHERN				
Pref. Ord.	79½	63	72½	+ ½
Def. Ord.	27	20½	20½	+ ½
5% Pref.	124½	104	115	—
5% Red. Pref. (1964) ..	117	107	110½	—
5% Guar. Pref.	135½	117	125½	—
5% Red. Guar. Pref. (1957)	117	106½	112½	—
4% Deb.	117	104½	115	—
5% Deb.	137	124	131½	—
4% Red. Deb. (1962- 67)	112	104½	108½	—
4% Red. Deb. (1970- 80)	113½	104	109½	—
FORTH BRIDGE				
4% Deb.	106	103	106	—
4% Guar.	106	101	103	—
L.P.T.B.				
4½ "A"	125	117	124½	—
5% "A"	135	127	133½	—
3% Guar. (1967-72) ..	100	97½	104	—
5% "B"	125½	115	120½	—
"C"	70	58	59	— 1
MERSEY				
Ord.	37	31½	30½	—
3% Perp. Pref.	72½	68½	72	—
4% Perp. Deb.	104½	104	105½	—
3% Perp. Deb.	84	78½	82½	xd
IRELAND*				
BELFAST & C.D.				
Ord.	8½	6	7½	—
G. NORTHERN				
Ord.	34	24½	40	—
Pref.	52½	42½	61½	—
Guar.	80	68	91½	—
Deb.	97½	87½	102	—
IRISH TRANSPORT				
Common	—	—	18/9	—
3% Deb.	—	—	102½	+ ½

* Latest available quotation



Southern Railway office recently opened at St. Malo

OFFICIAL NOTICES

His Majesty's Colonial Service

THE COLONIAL ENGINEERING SERVICE

CIVIL ENGINEERS are required for the Way and Works Departments of Colonial Railways in West and East Africa. Qualifications entitling applicants to consideration are Corporate Membership of the Institution of Civil Engineers, or Degrees or Diplomas recognised by that body as granting exemption from Sections A and B of its examination. Applicants must be fit and preferably not more than 35 years of age. They should have had experience of railway engineering practice, inclusive of track maintenance, but candidates lacking this experience may be considered if otherwise well experienced in general civil engineering construction and if personally anxious to make a career in railway engineering.

Appointments would be on probation for pensionable employment or on agreement with possibility of permanency. Those appointed on probation or an agreement would be employed within incremental scales rising from £450 to £840 and later from £880 to £1,000. Starting salary will depend on age, civil experience and length of approved war service. For example, in West Africa an Engineer aged 29 may hope to start on a salary of about £600, whereas an Engineer aged 33 may hope to start at about £720. In East Africa the point of entry will be slightly lower. Free furnished quarters are provided and free passages for the officer, and, if

married, for his wife on first appointment and on leave. In West Africa leave is normally granted on full pay after not more than 18 months' service at the rate of 7 days for each completed month of resident service. In East Africa this leave is usually permitted after 30 months' resident service and is granted on full pay at the rate of 5 days' leave for each month of resident service. Separation allowances are at present payable; for example, a married officer in Nigeria on £600 who has two children would be entitled to allowances totalling £168; on £720 he would receive £156 allowances. In East Africa cost of living allowances at varying rates are at present payable. For example, in Kenya a married officer on £600 who has two children would be entitled to allowances totalling £120; on £720 he would receive £80 allowances. Income Tax at West and East African rates only. Officers first appointed on salaries of £600 or less are granted outfit allowances.

Above salary scales are those within which the engineer would first be appointed but good prospects exist, and will continue to exist, for promotion to posts entailing greater responsibility.

Although most of the vacancies for Railway Engineers still existing occur in the West and East African Colonies, a very few remain in other Colonies. Those interested should write to the Director of Recruitment (Colonial Service), 15, Victoria Street, London, S.W.1, stating age and professional qualifications and giving dates when those qualifications were obtained.

ENGINEERING Firm in Victoria district, London, requires services of qualified Mechanical Draughtsman, A.E.D. Rates.—Box 16, *The Railway Gazette*, 33, Tothill Street, Westminster, S.W.1.

THE INDIAN AGENTS of leading British machine tool manufacturers require a **SALES ENGINEER** for service in India. Applicants should give full details of experience and training.—Box 15, *The Railway Gazette*, 33, Tothill Street, Westminster, London, S.W.1.

ASSISTANT DRAUGHTSMAN, with good training and experience, required for Railway Carriage and Wagon Department of Consulting Engineers' London office. Good prospects. Age about 30. Replies, which will be treated in confidence, should give full particulars of training and experience, and state age and salary required.—Write, Box D.I.H., c/o 95, Bishopsgate, London, E.C.2.

SECTIONED PERSPECTIVE VIEW OF LOCOMOTIVE FRONT END. A notable drawing of L.M.S.R. class "7P" 4-6-2 locomotive of the latest type. Reprinted from *The Railway Gazette*, June 15, 1945. Price 2s. 6d. Post free 2s. 8d.

BRITISH WORK ON PERSIAN RAILWAYS. The achievements and difficulties of the R.E.s. during the 15 months in which they laid the foundation for effective aid to Russia. Reprinted from *The Railway Gazette*, February 2 and 16, 1945. Price 1s. Post free 1s. 2d.

on July 15. The locomotive and all the 12 coaches of the train left the rails, and the first three coaches fell on to their sides, but the engine came to rest still upright. Although the train was full, only twelve persons were injured. Other trains to the North were diverted via Hertford, the lines at Hatfield being blocked by the accident.

Ensign of S.R. "Maid of Orleans" Presented to Folkestone Parish Church.—At the Parish Church, Folkestone, a short service was held on June 28, during which the ensign of the Southern Railway cross-Channel steamer *Maid of Orleans* was presented to the church by the ship's Master, Captain H. L. Payne, O.B.E., R.D. The vessel was engaged in the earliest assault on the Normandy beaches on D-Day, and made many subsequent trips to them. On June 28, 1944, as she was homeward bound, she struck a mine and sank; five members of her crew lost their lives.

Ministry of Transport Orders.—The Minister of Transport on June 15 made the following Orders:—

Railways (Additional Charges) Order, 1946.
Railways (Additional Charges) (No. 2) Order, 1946.

London Passenger Transport Board (Additional Charges) Order, 1946.

Railway-Owned Harbours, Docks & Piers (Increase of Charges) Order, 1946.

Railway-Owned Canals (Increase of Charges) Order, 1946.

Copies are obtainable from H.M. Stationery Office at York House, Kingsway, London, W.C.2; or at Edinburgh; Manchester; Cardiff; or Belfast; or through any bookseller, price 1d. net.

F.B.I. Mission to Brussels.—A delegation of the Federation of British Industries, at the invitation of the Federation of Belgian Industries, left recently for Brussels to continue discussions begun in January, when representative Belgian industrialists visited Great Britain. The British delegation is under the leadership of Lt.-Colonel Lord Dudley Gordon, Past-President, F.B.I., and consists, in addition, of the following members:—

Messrs. A. W. Berry (British Engineers' Association), F. Bower (Lever Bros. & Unilever Limited), D. M. Buist (British Electrical & Allied Manufacturers' Association), J. Clay (Wool Export Group), R. Colin Smith (British Iron & Steel Federation), H. J.

Kingsbury (Society of Motor Manufacturers & Traders), Sir Guy Locock (Vice-President, and former Director, F.B.I.), Messrs. L. P. O'Brien (Association of British Chemical Manufacturers), S. E. D. Wilson (Mining Association of Great Britain), and R. C. G. Hunt-Taylor, Secretary to the delegation (F.B.I.).

Additional L.M.S.R. Express Goods Services.—As a further step in the restoration of pre-war freight services, the L.M.S. Railway introduced eight additional express freight trains on July 8. The principal areas which benefit from the new services are Birmingham, Manchester, Leeds, Sheffield, and Liverpool. Whereas at the end of the war the L.M.S.R. operated only 33 freight trains in the two fastest classes, the number running at July 1 this year was 102, and this total has now been increased to 110.

Training London Transport Road Service Staff.—The progressive restoration of London Transport road services has been possible only through the return of men from the Forces, and by an intensification of the recruitment and training of new drivers and conductors. The half-yearly report of the London Transport Training School shows that during the past six months 5,952 men have been trained as conductors for road vehicles (3,585 of them for central buses), and 333 men have been trained as drivers. A further 2,929 conductors have qualified as drivers after passing through the Central Training School at Chiswick; of these 1,764 were for central buses, 406 for trams and trolley-buses, and 759 for country buses.

New L.M.S.R. Standard Colour Scheme for Rolling Stock and Stations.—After a year of experiments to ascertain durability, economy and appearance of various styles of painting and lettering, the L.M.S.R. has finally adopted a standard post-war colour scheme for its 8,000 locomotives, 16,300 passenger carriages, and 2,100 stations. All locomotives are to be painted black, and with the exception of the express passenger locomotives of the Pacific, Royal Scot, Patriot and Jubilee classes, will be unlined. The classes mentioned will be painted black and will be lined-out in maroon and straw colour. Carriage stock will be painted maroon instead of a shade often described as "Midland red" (from the livery of the former Midland Railway), with straw-coloured lining. Gill Sans

lettering will become standard. The basic colours for passenger station buildings will be maroon and straw, with various shades of grey for certain steel or timber work features such as footbridges, and roof steelwork in the open. Station nameboards in future are to be of the enamelled-iron type; those at the departure ends of platforms will consist of two boards set in a V-shape, so that the name of the station will be prominently visible from the windows of trains.

Southampton Port Employers' Association.—The port employers of Southampton interested in stevedoring, quay and allied labour have for some time been considering the establishment of an association independent of the shipbuilding and shiprepairing industry with which they have, for many years, been linked in organisation. A new association known as the Southampton Port Employers' Association (stevedoring, quay and allied labour) has now been formed, and at its inaugural meeting on Wednesday, July 3, 1946, the constitution was approved. Mr. R. P. Biddle, C.B.E., is the Chairman of the association, and Mr. C. E. Cotterell is Deputy Chairman. The Secretary is Mr. G. Owen Smith.

Surplus Machine Tool Sales.—Three additional selling centres for Government surplus machine tools will be opened by the Ministry of Supply on July 23 at Elstow, Kempston Hardwick, Bedford; Capenhurst, near Chester; and Saltney Ferry, near Chester. A large selection will be available, and may be inspected between 10 a.m. and 4 p.m., Mondays to Fridays. Purchases may be arranged on the site. The opening of the three depots will increase the number of machine tool selling centres to eight. An "on-site" sale of surplus machine tools will be opened by the Ministry of Supply at the Rolls Royce factory at Hillington, Glasgow, on July 31 at 10 a.m. Approximately 600 machine tools, consisting of autos, capstan lathes, turret lathes, millers, grinders, drillers and many miscellaneous types will be offered. The sale closes on August 6, and any unsold machines will be on view daily (except Saturday and Sunday) from August 7 to 13 for competitive tendering. Prospective buyers may visit the site between those dates to view the residual machines and obtain tender forms.

Railway Stock Market

Response of stock markets to the U.S. loan brought little improvement in the volume of business, and in most sections only moderate gains were shown, although generally the tone was firm, British Funds reflecting the belief that conditions are favourable for further development of the Government's cheaper money policy. Tobacco, cinema and newsprint shares were better on the U.S. loan news, and leading industrials recorded further small gains on balance. Iron, coal and steel shares were again inclined to improve, Stewarts and Lloyds being 50s. 3d., and Guest Keen 40s. 9d., while Powell Duffryn at 22s. 4½d. strengthened on the full report. Elsewhere Beyer, Peacock were 25s. 6d., Vulcan Foundry 30s. 3d. and North British Locomotive 29s. 9d.

A variety of factors combined to draw further attention to Argentine rails, which provided the most active section of the Stock Exchange, prices again showing all-round gains on balance, although best levels were not held in some instances. In addition to the hopes attaching to the British mission, whose talks are reported to have been carried out in a very friendly atmosphere, there has been further gossip that the exchange value of the peso may be raised. Moreover, it was also suggested that the British mission may visit Uruguay after the completion of the Argentine talks.

The largest volume of business was again in the ordinary or equity stocks on the assumption that, although speculative, they offer probably the best scope for capital appreciation in the event of a favourable outcome to the present negotiations; but preference stocks and debentures came in for increased attention. The latter partici-

pated well in the further upward trend of values, and were not subject to the same speculative profit-taking which reduced earlier gains in ordinary stocks.

The widespread rise in Argentine rails tended to draw attention to home rails, which came in for better demand on the view that they appear undervalued in comparison, bearing in mind that dividends around the 1945 levels can be expected so long as the fixed rental agreement remains in force. Moreover, sentiment was helped by the view that a satisfactory solution of Argentine railway problems would increase hopes of a fair deal for home railway stockholders, even in the event of nationalisation.

Home rail stocks failed to hold all earlier gains, but ordinary stocks were better on balance, although a disposition to await next week's interim dividend decisions subsequently tended to reduce buying interest. The market is continuing to assume that the interim decisions will be the same as a year ago. Meanwhile, the next anti-nationalisation moves of the railways are also awaited.

Comparison with a week ago shows that Great Western has risen on balance from 56 to 57½; the 4 per cent. debentures and 5 per cent. preference stocks were both at 116½ and the guaranteed stock remained at 125.

L.M.S.R., after advancing to 28½, eased to 27½ (which, however, compared with 26½ a week ago) sentiment reflecting the view that the company is unlikely to resume interim dividend payments on the ordinary stock. L.M.S.R. 1923 preference was 54½, the same as a week ago, with the senior preference a point down at 76½, an earlier gain having been lost. L.M.S.R.

guaranteed moved fractionally better at 100½, and the 4 per cent. debentures were maintained at 107½.

L.N.E.R. second preference attracted buyers, improving from 26½ to 27½; the first preference strengthened from 52 to 52½, but the first guaranteed eased further to 98½, although the second guaranteed remained at 93½.

Southern deferred rallied to 20½, from 19½ a week ago, it being pointed out in the market that the price is only moderately above levels of some Argentine rail stocks which are out of the dividend list. Southern preferred strengthened from 71½ to 72, but elsewhere less hopeful views of the dividend outlook reduced London Transport "C" from 60 to 58½.

Among the general rise in Argentine rails, Buenos Ayres Great Southern has risen on balance from 15 to 16, the 5 per cent. preference from 33½ to 35½, and the 4 per cent. debentures from 73½ to 75½. Central Argentine was 11, comparing with 10 a week ago, while the 6 per cent. preference advanced from 31 to 38½, with the 4 per cent. and 5 per cent. debentures 70 and 75½ respectively. Buenos Ayres & Pacific improved further from 9 to 9½. Buenos Ayres Western at 19 was also higher on balance, the 4½ per cent. preference rising further from 44½ to 46½; the 4 per cent. debentures were 74. Argentine North Eastern ordinary rose to 11. Central Uruguay ordinary at 11 was 2½ higher, and the second debentures have been marked up to 38½. In other directions, San Paulo was 51xd. Antofagasta preference improved to 47½ and Nitrate Rails shares rose sharply to 87s. 6d. Canadian Pacific reflected the reaction in dollar stocks, moving back from 24½ to 23½.

Traffic Table and Stock Prices of Overseas and Foreign Railways

	Railways	Miles open	Week ended	Traffic for week		No. of Week	Aggregate traffics to date			Shares or Stock	Prices		
				Total this year	Inc. or dec. compared with 1944/5		Totals		Increase or decrease		Highest 1945	Lowest 1945	July 16, 1946
							1945/6	1944/5					
South & Central America	Antofagasta ...	834	7.7.46	£ 38,410	+ 9,380	27	£ 857,890	£ 829,390	+ 28,500	Ord. Stk.	12	8½	10½
	Arg. N.E. ...	753	6.7.46	ps. 302,400	+ ps. 14,900	1	ps. 251,000*	ps. 287,500*	— ps. 36,500	"	10	5½	11
	Bolivar ...	174	June, 1946	3,692	— 948	26	25,836	30,275	— 4,439	6 p.c. Deb.	8½	5½	6½
	Brazil ...	—	—	—	—	—	—	—	—	Bonds	25	17	26
	B.A. Pacific ...	2,771	6.7.46	ps. 2,319,000	+ ps. 411,000	1	ps. 1,988,000*	ps. 1,908,000	+ ps. 80,000	Ord. Stk.	7	5	10
	B.A.G.S. ...	5,080	6.7.46	ps. 4,004,000	+ ps. 1,114,000	1	ps. 3,421,000*	ps. 2,890,000	+ ps. 531,000	Ord. Stk.	13½	10½	16
	B.A. Western ...	1,924	6.7.46	ps. 1,271,000	+ ps. 214,000	1	ps. 1,083,000*	ps. 1,057,000	+ ps. 26,000	"	12½	9½	19
	Cent. Argentine ...	3,700	6.7.46	ps. 3,126,000	+ ps. 286,400	1	ps. 2,834,000*	ps. 2,839,600*	+ ps. 5,600	"	9½	7	11½
	Do. ...	970	6.7.46	40,544	+ 4,709	1	34,752	135,835	— 1,083	Dfd.	5	2½	5½
	Cent. Uruguay ...	262	Apr., 1946	33,948	+ 5,306	43	286,820	231,946	+ 54,874	Ord. Stk.	7½	4	11
	Dorada ...	70	June, 1946	35,600	+ 1,820	26	186,275	182,375	+ 3,900	1 Mt. Deb.	103	102	99½
	Entre Rios ...	808	6.7.46	ps. 410,200	— ps. 1,000	1	ps. 338,900*	ps. 411,200*	+ ps. 72,300	Ord. Stk.	7½	4½	9
	G.W. of Brazil ...	1,030	13.7.46	24,100	+ 1,500	28	785,400	699,900	+ 85,500	Ord. Stk.	30½	23½	22½
	Inter. Ctl. Amer. ...	794	May, 1946	\$195,228	+ \$24,762	21	\$970,923	\$792,282	+ \$178,641	—	—	—	—
	La Guaira ...	224	June, 1946	4,812	— 2,294	25	33,039	36,929	— 3,890	5 p.c. Deb.	78	70	60
	Leopoldina ...	1,918	6.7.46	57,091	+ 2,624	27	1,501,444	1,281,372	+ 220,072	Ord. Stk.	4½	3½	3½
	Mexican ...	483	31.5.46	ps. 1,464,000	+ ps. 459,100	21	ps. 18,661,800	ps. 13,441,600	+ ps. 5,220,200	Ord. Stk.	½	—	—
	Midland Uruguay ...	319	May, 1946	21,830	+ 1,483	48	203,280	196,052	+ 7,228	—	—	—	—
	Nitrate ...	113	May, 1946	6,667	+ 936	48	61,174	62,390	— 1,216	Ord. Sh.	75½	67½	86½
	N.W. of Uruguay ...	274	5.7.46	£94,339	+ £20,119	1	£50,199	£58,382	— £8,183	Pr. Li. Stk.	79½	77	73½
	Paraguay Cent. ...	1,059	June, 1946	137,553	+ 12,587	52	1,675,574	1,554,661	+ 120,913	Pref.	10½	7½	15½
	Peru Corp. ...	100	May, 1946	c 123,750	+ c 11,750	44	c 1,517,450	c 1,420,000	+ c 97,450	—	—	—	—
San Paulo ...	153½	—	—	—	—	—	—	—	Ord. Stk.	60½	50½	51xd	
Taltal ...	156	June, 1946	4,025	+ 230	52	41,020	35,700	+ 5,320	Ord. Sh.	17½	10½	17½	
United of Havana ...	1,301	6.7.46	60,259	+ 19,290	48	45,094	40,969	+ 4,125	Ord. Stk.	3	1	1½	
Uruguay Northern ...	73	May, 1946	2,039	+ 193	48	19,390	18,105	+ 1,285	—	—	—	—	
Canada	Canadian National ...	23,569	May, 1946	6,156,800	— 1,366,600	21	30,910,800	34,842,400	— 3,931,600	—	—	—	—
	Canadian Pacific ...	17,037	7.7.46	1,316,750	— 244,000	27	36,179,750	40,242,750	— 4,063,000	Ord. Stk.	24	14½	23½
Various	Barsi Lightf ...	202	May, 1946	21,465	+ 90	9	54,465	48,562	+ 5,903	Ord. Stk.	131	123	113½
	Beira ...	204	Apr., 1946	75,610	+ 2,752	28	508,964	536,577	— 27,613	—	—	—	—
	Egyptian Delta ...	607	31.5.46	17,006	+ 1,238	9	98,879	100,409	— 1,530	Prf. Sh.	10	8½	5
	Manila ...	—	—	—	—	—	—	—	—	B. Deb.	71	55½	71½
	Mid. of W. Australia ...	277	May, 1946	20,041	+ 2,552	47	192,189	207,237	— 15,048	Inc. Deb.	97½	85	75
	Nigeria ...	1,900	May, 1946	326,207	+ 48,577	8	679,107	563,561	+ 115,546	—	—	—	—
	Rhodesia ...	2,445	Apr., 1946	523,706	+ 52,416	28	3,517,907	3,491,415	+ 26,492	—	—	—	—
	South African ...	13,301	8.6.46	1,141,643	+ 116,418	10	10,647,003	9,578,864	+ 1,068,139	—	—	—	—
	Victoria ...	4,774	Mar., 1946	1,301,609	— 2,195	—	—	—	—	—	—	—	—

* Six days.

† Receipts are calculated @ 1s. 6d. to the rupee.

‡ Six days